ANATOLY ROGOZHKIN
Notes of a Nature Photographer

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Translated from the Russian
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The Author's Foreword

This book is the result of a journey which lasted many years. If I were to mark all my trips on the map of the USSR, they would cover the entire territory of the Soviet Union, from the Baltic to the Pacific and from the White to the Black seas. I have been in the tundra, taiga forests, mountains, steppes and deserts.

Russia is a vast and rich country. As a journalist and a biologist, I have been interested mainly in nature in all its variety, and in that complex aspect of modern life called ecology.

My travel notebook and rolls of film have captured hundreds of impressions. The most vivid of them were at dawn when the sun rises in a crimson glare, and in the evening, when it recedes beyond the horizon.

Naturalists know that nature comes to life at the beginning and the end of the day. These are the best times to observe wild animals: in these precious hours nature gives wonderful gifts to a photographer.

Nature is our common home. So we must know it well — in order to love it better, to protect it and to augment its riches.

The more concern people on Earth show for protecting and improving our home, the happier and more satisfying our life will be in it.

I have been fortunate enough to meet such people and to see the results of their efforts. I will tell of them also in this book. People of different professions — a scholar, a flower-grower, an animal-trainer, a writer, a photographer — they all have one feature in common: they are true nature-lovers, both in theory and practice, fighting for the well-being of our planet.

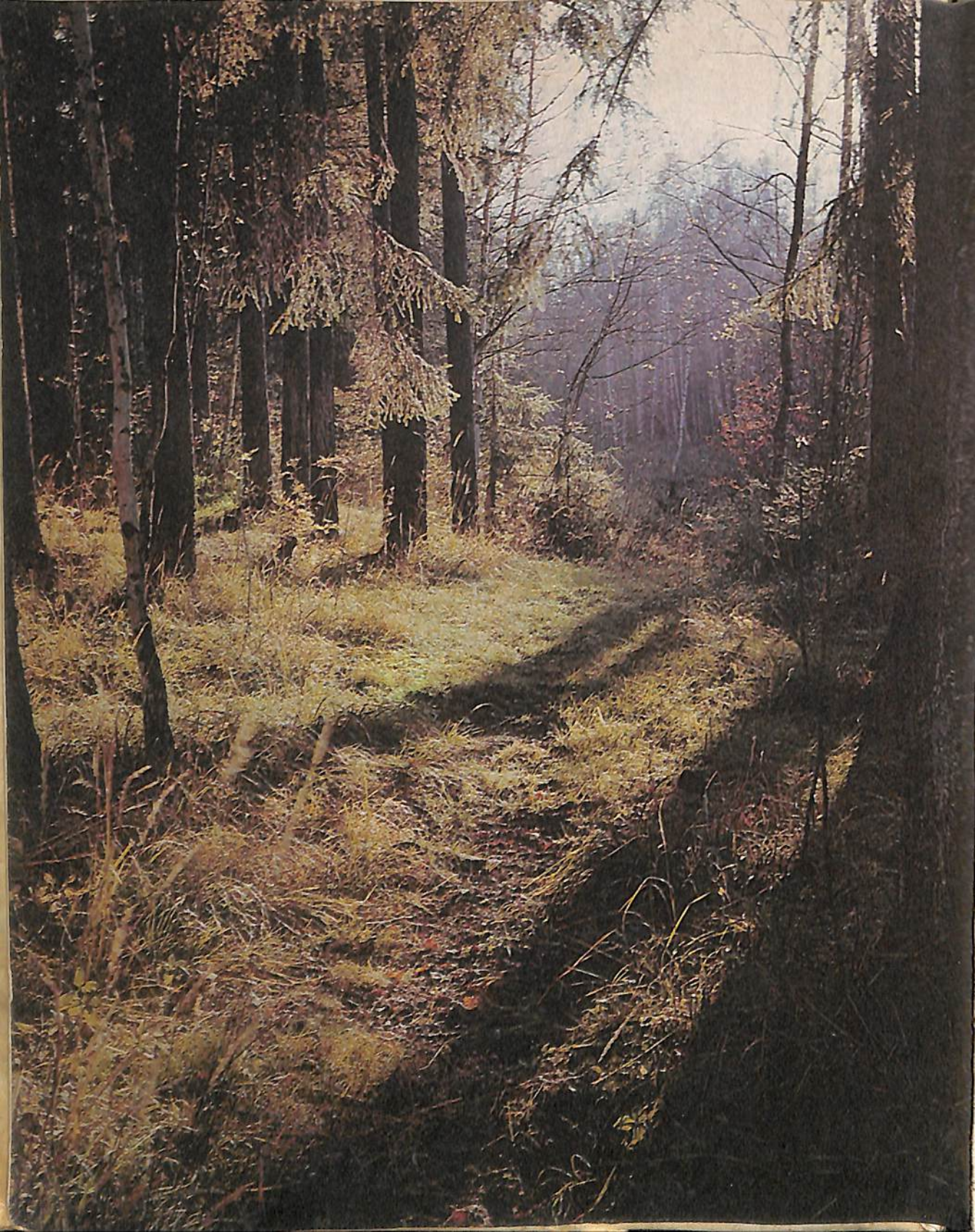
Nature is not always kind to man. It can be harsh, even cruel. People have always dreamed of living in concord with nature. But it is not an easy dream to bring true. Much depends on man, his will, common sense and work.

I have seen quite a few wonderful examples of nature being enriched and given back its squandered wealth. The measures to achieve this taken in the Soviet Union included the setting up of wild nature preserves — initiated in the early years of Soviet power by decrees signed by Lenin, a ban on all hunting of rare animals to save them from complete extinction, and the acclimatisation of new species of fur animals.

Nature conservation is the duty of all citizens of our country, as is laid down in the constitution of the USSR. Soviet children are taught to fulfill this duty from an early age. For more than half a century there have been functioning in the Soviet Union associations for young naturalists aged between 11-17.

Vulnerable living nature is not only thousands of miles away: it is right beside us. That's why I have included in my book notes on domestic animals.

The photographs which accompany the text will show the readers the main hero of this book — the living nature of the Soviet Union.

Everyone may have his own encounters with wild nature. I wish you many! Good luck on your journey into the fascinating world of Nature!

Our Common Home

Since Early Childhood

How does one acquire an interest in nature? There can hardly be a cut-and-dried answer to this question.

Some become aware of the beauty and fascination of nature in their mature years, others feel the mysterious pull of forests, fields, rivers and their dwellers from childhood. It just depends on the individual.

I once heard someone say, when invited to go mushrooming, that he did not like forests and was even afraid of them. He felt much safer on roads.

I felt very sorry for him. How many wonderful things he had missed in life! Obviously, there had been nobody in his childhood to introduce him to the world of nature.

I grew up in the country. Like other village lads, I was taught early to ride a horse, to look after domestic animals and the vegetable garden, to fish and to pick berries and mushrooms. When I was just a tiny tot, I remember a neighbour showing me the "monster with nippers" — a crayfish — and telling me about the amazing creature. That was one of the most vivid impressions of my childhood.

A hunter taught us seven-year-olds to recognise animals' and birds' tracks and told us about the habits of foxes, hares, wood-grouse and black-cocks. And later we were always on the lookout for these animals and birds.

I shall remember my first Pioneer leader as long as I live. At the end of my fourth year at school I went to a summer Pioneer camp. Actually, I did not have far to go for the camp was quite near our village. Our leader, Svetlana, who came from a town, often took us for walks in the woods and meadows and for swims in the river. We vied with one another in telling her how best to catch a burbot, where the best mushrooms grew, where the black-cocks had their mating tournaments and where there were plenty of hazel-grouse. We knew many different kinds of herbs, berries and trees. We told her how wheat was grown, how to protect the orchards from spring frosts and how to break in a stubborn horse. What, it would seem, could she, a town-dweller, tell us village children about nature? And yet, amazingly, Svetlana revealed to us such beauty and hidden secrets of nature, that we could only gape in surprise. Of course, her main information sources were books.

One day Svetlana brought us to a clearing in the wood, told us to sit in a circle, and started reading aloud about the adventures of Mowgli in Kipling's *The Jungle Book*. At that time, shortly after the end of the Second World War, there were few good books available, and none of us had read *The Jungle Book*. We listened spellbound. Although the story described a life unknown to us in the distant Indian jungle, we transported this life in our thoughts to our own forests. We saw Chil the Kite wheeling overhead, Akela and his pack stalking prey nearby, Baloo the bear crashing his way through the thickets.

Then she read us stories by Prishvin and Bianki, and afterwards we went to the meadow to look for the medicinal herbs we had learnt about in the books, and listened to the singing of birds in the nearby birch copse. And each time Svetlana told us something new.

"Which is the smallest bird in our forests?"

Unable to answer, we kept silent, and she replied for us: "Why, the kinglet, of course! He only weighs 4 grams. You've seen him lots of times!"

Several years later I myself became a Pioneer leader, and then really appreciated how much Svetlana had done for us — a town-dweller, who had found her way in nature and taken us along it. Today I am firmly convinced that any school-child, no matter how urbanised, can learn to love nature and discover it for himself.

As is well-known, information is best implanted in our minds if we are fascinated by the subject. How many people developed a lasting interest in biology after reading Brehm[1], Fabre[2], Timiryazev[3]! Who remained indifferent to such wonderful works of fiction as Lev Tolstoy's "Yardstick", Chekhov's "Kashtanka", Troyepolsky's[4] "White Gordon with a Black Ear"? And that's to say nothing of the vast world of popular science literature.

Nowadays you cannot consider yourself well-read if you do not know the books of the famous naturalists Bernhard Grzimek[5], Joy Adamson[6], Gerald Durrell[7] and, in the Soviet Union, Igor Akimushkin[8] and Vassily Peskov. Their attraction lies in the authors' passionate dedication to their subject, in their in-depth knowledge of the world of nature and their sincere love for it. All this arouses a response in their readers.

But knowledge acquired from books is useless without first-hand experience, without contact with plants and animals, without visits to forests, fields and mountains.

Nature keeps her secrets hidden from idle and superficial observers. Only people with a real thirst for knowledge become totally at home in it. We call such people naturalists. Every good hunter, fisherman and nature photographer is usually a good naturalist as well.

It would be no exaggeration to say that every person nowadays must be something of a naturalist. But time and effort is needed if you want to understand nature. And the best time for such learning is childhood.

Now I am going to speak of something that I consider of primary importance.

I know from personal experience that any appeals to love your land, nature and animals will remain unanswered, or, rather, not reach the hearts of those being addressed unless people get acquainted with the complex world of nature through work, through active participation in its life from early childhood.

Tending animals and studying them is sometimes none too easy, but if a person is fascinated by the world of living nature, this work will not be a burden, but will bring him joy, and even shape his personality.

A while ago I made the acquaintance of a middle-aged man who keeps exotic, brightly coloured birds. He has over fifty of them. Caring for all these birds and breeding them require a fine knowledge and plenty of work. But the owner, although a busy man, does not find this additional work a burden. On the contrary, his birds give him joy, offer him a chance to what he calls "rest actively", and relieve nervous tension. I noticed that he is able to discern barely noticeable hues in the colours of flowers, the sky and greenery. The exotic colouring of his birds has sharpened

Young nature-lovers often have occasion to nurse animal babies. This sable cub has a competent nurse

his eyesight and made him more sensitive to colours. The great number of books on biology in his house shows that his hobby is based on fundamental knowledge.

Here is another example.

Some zoologist friends of mine keep several pets — two dogs, a pigeon, song birds. All the members of the family help look after them and clean the apartment which has to be done every day. Some of their neighbours, who dislike animals, do not bother to hide their scorn for my friends, intimating that they "have a screw loose".

The zoologists' son is fourteen. When we discussed their pets, he added: "Of course they're fun, but there's quite a lot of work involved." He glanced at his parents as though seeking support for his words. And you could tell they were pleased that their son took the tending of the animals so seriously and he was quite right, of course.

I am sure there will be no need to instil a love for animals in this particular boy. He has already been introduced to the complicated and wonderful world of nature and will retain a reverential interest in it, whatever profession he eventually chooses. And respect for every manifestation of life and, of course, for people is one of the basic rules of human conduct. Living nature is an excellent teacher, especially if you learn about it through work.

There are still debates going on about whether cats, dogs or hamsters should be kept in homes where there are small children, and whether we should treat animals solely from the point of view of their practical usefulness.

My opinion may be subjective, but here it is for what it is worth.

I cannot conceive of a house, in the town or country, that has no animal, be it merely a hamster, a parrot, a cat or a dog. Moreover, I am convinced that children who have grown up in isolation from our four-legged and feathered friends, who have never experienced looking after animals, lose out a great deal in life once they are adults. I realise that many people will disagree with me, most of whom will be precisely those who were deprived of the childhood joy of living close to animals. And I realise it is hard to admit that one has missed something in life. Nevertheless, I am quite sure I am right. Too many examples show I am.

I have often seen young people from the towns wrinkling their noses up at the smells on animal farms or at zoos. Of course you cannot expect clinical hygiene in a place where animals live!

As a result, there is a marked reluctance among the young people in many countries to work in animal husbandry. Even modern complexes, say, pig-breeding ones, suffer from a shortage of young hands. One of the arguments is the smell. Yes, the pungent smell of a pigsty, and also the "dirty work".

Specialists are tackling these problems in earnest, thinking up ways to make work on animal farms more attractive. To be sure, these problems need attention. It is the demand of the time. But we must also remember that a person who has been brought up correctly, does not distinguish between "dirty" and "clean" jobs. What matters most is to love your work, understand its importance and take a pride in it.

The other day I had a chance to watch the world-famous animal-trainer and

authoress Natalia Durova at work in her Animal Theatre. One thing was made perfectly clear to me: people who shy away from "dirty work" will not fit into this shrine of art (yes, the lofty words are quite justified!). For Natalia Durova and her colleagues, a stable is not a disagreeable place which needs to be mucked out regularly, but a workshop where hard physical work is blended with inspired creativity. Taking care of animals of different species, from the sea lion to the chimpanzee and parrot, rearing and feeding them and treating their ilnesses is no less hard work than that at a modern stock-raising establishment. Incidentally, people who work at the Animal Theatre are past masters of their craft. You have only to talk to them about their work to realise that they have gained competence in their chosen profession through the hard work and love of animals they have fostered since childhood.

This applies to people both in the town and country. It is worth noting that most famous Soviet zoologists and selectionists were born and brought up in towns. They include, for instance, Academician M. F. Ivanov[9] who has developed highly-productive breeds of agricultural animals, and zoologists A. N. Formozov[10] and P. A. Manteufel. They were townsfolk, yet they had a first-hand knowledge of nature and did not shun hard work. Like many other naturalists, they studied the world of nature and did a lot to protect and improve it. This process will continue as long as Man remains part of his environment. Yes, he exercises an influence on this environment, not always for the better, but, fortunately, not always for the worse either.

Our planet is rapidly becoming urbanised. Cities keep growing. I don't think this process could be reversed. So man has to find solutions to many new problems, and change his opinions about many things.

For a long time it was considered that nature is inexhaustible, and so Man kept taking from it, never bothering to give back.

Then came the crunch: the harm we had done to Nature began affecting our own lives. Some, seized by panic, exclaimed: "Nature is being irreversibly depleted! We must leave it strictly alone! It is perfect as it is!"

Both these extreme views are unfeasible. The only right relationship between Man and Nature is mutual enrichment. Today wild nature can only provide 10 per cent of the earth's population with food. Where do we take the rest? From the fields where we grow grain. From vegetable gardens. We have developed hundreds of highly productive breeds of animals and poultry. It is in this way that the bulk of people's requirements in nourishment is being satisfied.

Nature has always been and always will be our main source of food. When we protect it from our own ignorance and extravagance, we think of our own interests in the first place. If Nature's riches are exhausted, the human race will cease to exist. While we still exist we shall consume Nature's resources. But it must be done with foresight, so that these resources, far from dwindling, are augmented.

The Soviet ecologist Academician Stanislav Schwarz[11] said: "Strange as it may seem, the structure of nature is quite simple. Green plants absorb carbon dioxide and create organic substances that serve as food for animals and man. Plants are producers: they produce the substances that are consumed by animals. Animals and man

are consumers. Bacteria are the final link — they return the nutritive substances the plants need back to the soil."

The essence of this formula lies in the interdependence of the above-mentioned three categories. If it were not for animals, the plants would become choked with their own waste matter. And without bacteria both plants and animals would perish. Therefore the consumption of natural riches is as necessary as their production. But we must know where to stop. That is what science is for.

Living in modern blocks of flats, we tend to idealise and simplify nature.

The books of the English biologist and writer Gerald Durrell are widely read. Nobody could suspect him of not loving nature, or not knowing it. And yet in one of his books Durrell wrote that many imagine Mother Nature as a bounteous old Lady, whereas in actual fact she is a cruel, implacable and predatory monster.

The herd of sika deer living in a wooded park near Moscow are so used to people's care that they can be hand-fed and are not even afraid of cars

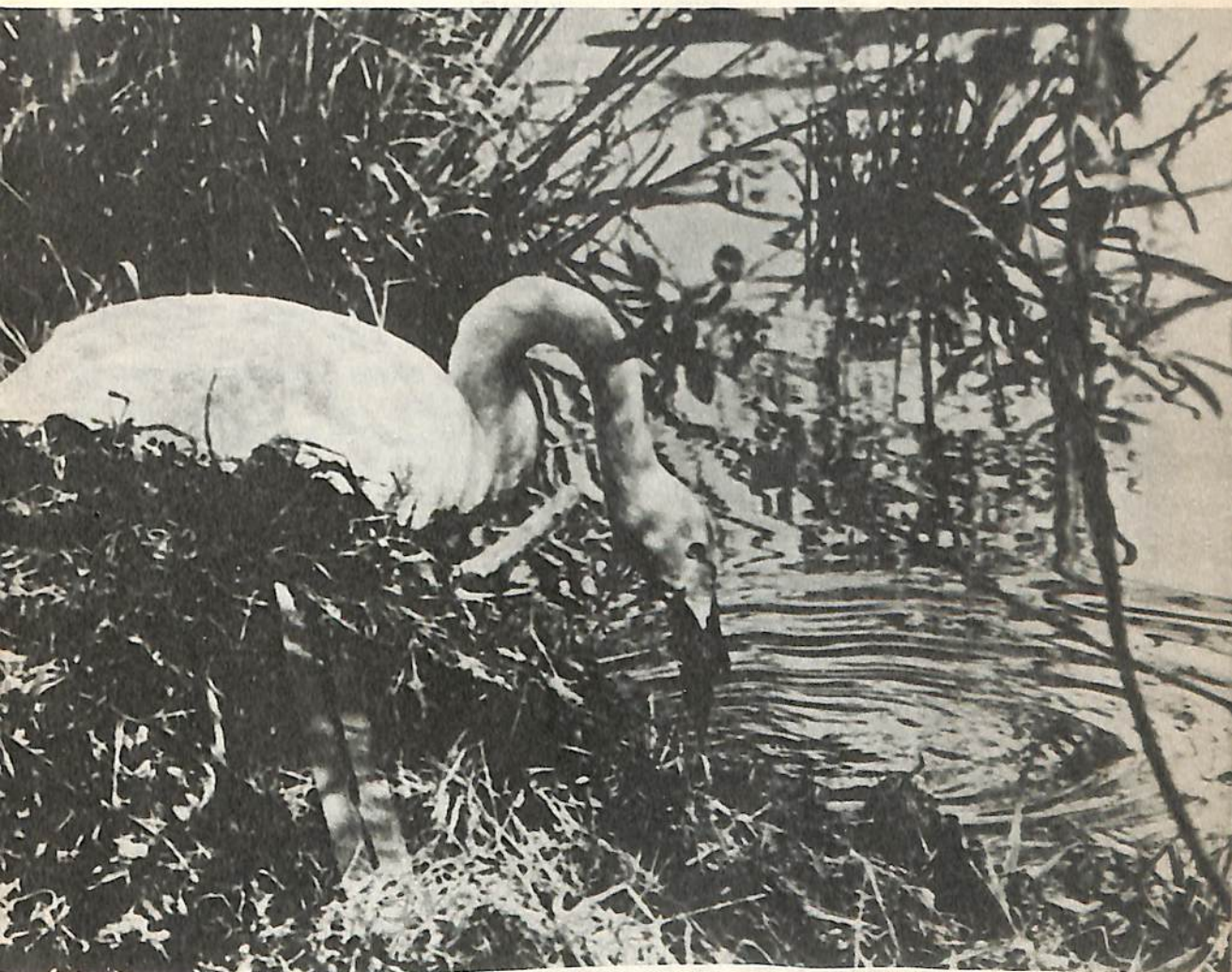
I am not quoting Durrell to arouse a dislike for wild nature. What matters most is to keep things in perspective. We need objective scientific information about nature — we need it in order to protect nature.

But we shall also continue our work of bridling the elements. We must transform

A nest of swans. The pair rears a brood of cygnets here every year

nature for man's needs, provided we do not destroy but enrich it in the process. We must fight droughts, salination of soils, sand storms, avalanches, floods, etc.

Of course some things will provoke arguments. There is nothing wrong about it. The important thing is that through arguments we should learn to be wise and thrifty masters of nature.

Most wild animals are mortally afraid of man. And they have reason to be. Since time immemorial man has hunted wild animals and birds — with pits, snares, bow and arrows, and finally with guns. Wild animals have become wary about coming near human habitations.

But times have changed. Man is offering friendship to wild nature. Friendship and help. And the results are there for everybody to see. Today we know of many instances of wild animals showing trust in man. Zoologists are noting that birds and animals are coming to live in big towns, regardless of the noisy streets and polluted air.

Within the last century more than 30 species of wood, steppe and field birds and

waterfowl have begun to nest in towns and cities. People welcome them and readily help them with food. Not only pigeons, sparrows, grey crows and seagulls, but also starlings and rooks are now wintering in Moscow. Mallard ducks have forsaken their custom of migrating to the south in winter, and flocks of them now weather the cold season on Moscow's unfreezing reservoirs. There are whole generations of ducks which have never migrated — they're known as "city population". This has been observed not only in Moscow, but in Leningrad, Tallinn and a number of other cities also.

Moscow Zoo now has a unique colony of golden-eye ducks, which build their nests in tree hollows. It was quite a difficult undertaking to get this colony established. You see, golden-eye ducks always build their nests where they were themselves hatched. So the ornithologists had to get hold of their eggs and put them into the nests of mallards in the Zoo. The establishment of the colony took several years. And now these small ducks with white sides come to the noisy city every spring and hatch their young here, unafraid of people and cars.

Roe-deer, elks and even wild boars often venture inside the city. Moscow's large wooded parks are inhabited by foxes, squirrels, martens, badgers and hares. Most of these animals do not show themselves to people in broad daylight. But in winter the numerous tracks in the snow betray their presence. There have been many instances of people helping animals in trouble. They have aided elks which had fallen through thin ice to get to the bank, they have picked up and nursed to health storks, cranes and swans with injured wings. They have reared sick fox cubs, baby-hares and roe fawns. And animals have repaid this kindness with trust and affection.

Are we always worthy of such trust? Here are a few episodes from life. A couple of swans built a nest on the pond in Ostankino Park in Moscow and hatched a brood of cygnets. A huge nest, and large beautiful birds. People were sauntering along the park walks, cars were driving past a short distance away. I decided to photograph the birds in their nest and suddenly noticed a militiaman nearby. I found out that some young louts had tried to destroy the nest, so it had been decided to post a militiaman nearby. I think this fact speaks for itself. Who but irresponsible and cruel people could have designs on a swans' nest?

Yes, we must keep things in perspective in our relationships with animals. It is wrong, for instance, to pick a baby animal up and take it home just because you think it has lost its parents. Once the little hedgehogs, foxes and hares get used to life in a human dwelling, they are no longer fit for life in the forest. As often as not they perish among people, and if you set them free in a wood, they are doomed too, because they have not learnt "the law of the jungle" and are unable to fend for themselves. And, most important, they had not lost their parents and did not need human help: their parents were, in all probability, nearby waiting for people to go away, and then they would have certainly taken care of their young.

Every encounter with a wild animal places a special responsibility on man. You must not frighten or pursue animals and birds. Nor should you try and pet them. Such attempts could end tragically for the person concerned.

I know about one such incident.

A father and a son were driving along a forest road in autumn when they suddenly spotted a handsome elk with huge antlers on the verge. They got out of the car, and the boy approached the elk, offering it a piece of bread, while the father got ready to photograph the touching scene. But the elk flattened its ears and suddenly lashed out with a foreleg aiming for the boy's face. The boy fell, the father dropped his camera. Fortunately, the boy had fallen from fear — the elk had missed its mark. So they got off lightly. After all, the wild beast could have no idea of the two humans' intentions, for all it knew they might try to kill it. It is best not to approach big animals. And it is also dangerous to keep big animals as pets. Not only dangerous but also immoral.

I want to cite a small article that was published in the June 1980 issue of *Young Naturalist* (this magazine is published in the USSR for children interested in nature, animals, birds and plants). I quote it in full.

"A national campaign has been launched in Japan against the keeping of dangerous animals as pets. It was caused by a tragic incident in the flat of one ardent nature-lover, who was killed by his two pet lions. The police has also discovered boa constrictors several metres long in larders, bears and leopards in halls, crocodiles in bath tubs and numerous other animals, which by no stretch of the imagination could be classified as 'domestic'. According to police data for 1979 the Japanese kept 1,138 particularly dangerous animals as pets in their homes, including 874 bears, 91 boa constrictors, 62 crocodiles, a gorilla, a hippopotamus and some elephants."

This article was published in our magazine three months before the tragic events in the Berberov family of Baku, when the tame lion King the Second (his predecessor had been shot by a militiaman when a frightened passer-by cried for help) suddenly attacked his mistress and her fourteen-year-old son, killed the boy and wounded the woman. This incident was widely analysed in the Soviet press. Unfortunately not all lovers of dangerous pets drew the right conclusions from the tragedy.

Fashion, a hankering after sensationalism, ignorant self-indulgence, indifference to other people around — these are attributes of rampant philistinism and have nothing to do with real love of animals.

Somebody who is soppy with a lap-dog or a cat is often likely to be rude and insensitive to people. It is no secret that many animal-lovers are quite cruel even to members of their own families. But the opposite is also true quite often: a seemingly mild-mannered man may suddenly show complete indifference or even be cruel to animals.

My dog, a kurzhaar, was killed late in the evening, when traffic was light, by a lorry whose driver swerved onto the pavement on purpose. He killed the dog before the eyes of my son. Anybody who has ever kept a dog will understand what a shock it was for the boy and how grieved we were at our loss. But I am even sorrier for the man at the wheel — and believe me, I mean it. Not only did he kill the dog in his spite, he killed his respect for people also. He, above all, robbed himself.

Such senseless, mindless cruelty often leads to crimes against human society, and so, against oneself.

Of course, it is a pathological condition. Of course, it is an exception, an extreme

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case. But, like every exception, it proves the rule. Attachment, love, if you like, for living things rests, above all, on love for your fellow-creatures.

Of course, in becoming attached to an animal or a bird we are not absolutely selfless. If you keep a canary, you admire its beauty and delight in its song, but you don't hog

These adolescent camels live in the menageries of the Centre of Young Naturalists in Krasnodar. The children have named them Adam and Eve

the joy, you share it with others. When nursing a sick fledgeling, or canvassing for the protection of a rare animal included in the Red Data Book, an animal you are never likely to see, you have an interest, too. But this is the most disinterested interest there is. For you are not out to gain anything for yourself — you do it for the people who live around you and for the generations who will come after you...

Love for an animal...

Does not a frontier guard love his dog when he sends it under enemy bullets? He loves it and yet he exposes it to danger, as he also does himself — for the sake of his mother country.

Does not a jockey love his horse as he gives him a taste of the whip before an obstacle? He loves him. But he works as hard as the horse to win, they are a team.

And what about the tamer of big animals? Does he not risk his health, and at times life itself? Isn't he attached to his big-fanged partners? They are a team, too, and they serve people.

It is no simple notion — love for animals. While taking measures to protect them, adopting rigorous laws aimed at augmenting natural riches, including fauna, we must not for a second lose sight of the well-being of the most valuable of treasures on the planet — Man.

Even people who have done a great deal to protect animals and spread ecological knowledge do not always seem to be aware of this.

Here is a quotation from the book *Dixie*, published in Krasnoyarsk (Siberia) in 1969 and written by a person I hold in great esteem, Elena Krutovskaya (the book tells about her pet lynx):

"People are very different. But, irrespective of sex, age and profession, they fall into two principal categories in their attitude towards living nature: indifferent pragmatists and fervent cranks. The first view objects of living nature in terms of their practical use for themselves: the sable for them is only a pelt, a birch-tree — so much firewood not yet chopped down... The others, fervent cranks, do not care whether object of their love has any practical use or not."

This assertion lacks precision, to put it mildly. On what category must we place the outstanding scholars and field-workers who devoted their lives to placing natural riches, animals included, at the service of man? Did they not love all living things most dearly? It is their approach to life's complex problems that young people should follow. For man does not only live to admire the beauties of the earth, but also to make economic use of the natural riches and augment them for the purpose of using the newly-created resources. This does not in the least exclude a sincere admiration for nature.

So remember: it is through work and love for your land and for people that you will find the way into Nature.

Nature in the Viewfinder

A hunter's supreme reward is his trophy — the game he has bagged. But he has other rewards as well — the walk through field or forest on a fine day, the thrill of successful tracking, of a lucky shot. In other words, hunting gives a person a wide range of intense emotions.

What, then, about hunting with a camera? What difficulties and joys does it provide? What advantages? Is it really exciting?

Every nature photographer will give his own answers to these questions. On some points they all will agree, on others they'll differ.

I shall give you my own opinion, the result of twenty years' stalking animals with a camera. A lot depends on *how* you became an enthusiast of this particular type of hunting.

Squirrels are common in city parks

These days not every keen hunter will explain why he started hunting to a group of acquaintances. Someone is too likely to ask with a sorry look: "You mean to say you enjoy killing animals?" And someone else may launch into an angry diatribe about the indiscriminate killing of living things.

However, you will get a much more favourable reception if you say you go into the fields and woods with a camera. Even the most urbanised of your interlocutors will expound on what a noble and artistic pursuit nature photography is, so useful and, most important, so "absolutely harmless". They will complain about lack of time, but for which they, too, would have picked up a camera and started, at the break of dawn, for the pampas... As they examine your trophies, they will express wild delight, calling a heron a crane, a sable a ferret, and a hare a rabbit. But in a few minutes they are apt to lose interest and change the subject to something "closer the asphalt".

In the company of such people it is easy enough to answer the question why you started photographing wild nature. You just say, "I love animals", and the answer is

Chamois also live in parks, close to people, and are always willing to pose for a photograph

considered exhaustive and is received with general gratification. And there is no risk of hearing a condemnatory soliloquy about "those legalised murderers", the hunters.

But, if the truth be known, I first felt an urge to photograph animals out hunting with a shot-gun. These days, the hunting seasons have been drastically curtailed. So

A raccoon-dog. Sometimes people confuse it with the raccoon proper. In fact it is a very different animal, belonging to a different family

during the prohibited seasons, I started going into the forest with a camera. And I soon found that it had more to offer than hunters realised.

In the first place, you have a different trophy. It is a memento of what you have seen, a document, sometimes even a discovery, and a piece of artistic value, which at its best, deserves to be called a work of art. Moreover, the picture of an animal or a bird

you have obtained can be copied. So it will bring pleasure not only to the hunter himself and his relatives and friends but may also be published for many thousands to enjoy.

At the same time, photographing nature requires consummate skill, that is only

A ring-dove. This bird has set many puzzles to biologists. One of them is its unexpected spread from Southern regions far to the North

attained with time and experience. But once attained, it will come in useful not only for photographing nature.

Nature photography affords many joys, but it also takes much physical strength and patience, and so it cannot be appreciated by everyone with a camera in his hands.

I am now convinced that people with some hunting experience make the most successful nature photographers. For tracking skills, a knowledge of animals' and birds' habits, good orientation in a forest and the patience developed after spending many hours in a covert, as well as many other useful things you learn out hunting, all stand you in good stead when you are hunting with a camera.

But on top of all this, you need one other quality, known only to the keenest hunters. It is passion. The passion for hunting which has come down to us from our ancestors. It makes you get up at midnight and tramp across bogs and thickets to hear the blackcock's magical mating song. It makes your breath stop, your heart pound and head

A forest warden kept a pet bear in Yakutia. Their favourite game was "tug-of-war". The bear, once it grew to its proper size, was invariably the winner

whirl. To experience once again this tumultuous emotion a hunter is prepared to travel to the ends of the world, drive himself to exhaustion and endure extreme hardship.

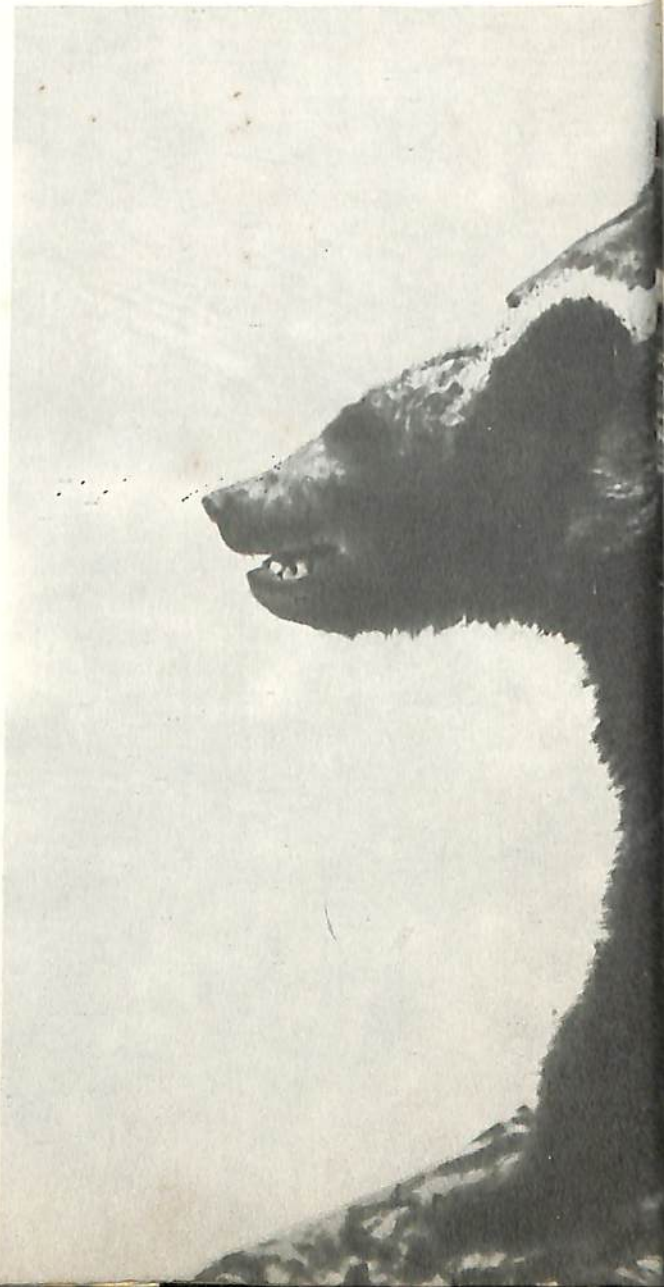
As soon as I started hunting with a camera, I realised that while being more complicated than hunting with a gun, it was not a mere substitute for it but an even more exciting pursuit. The usual passion for hunting seems to be doubled. You get as excited but you need much more competence and patience. On top of mastering photographic techniques to perfection (which is not so easy either), you have to deepen and broaden your hunting skills, to acquire a better knowledge of animals' ways and to acquire new experience, quite different from what you had so far. You get hooked on looking through the viewfinder eyepiece at as many different animals as possible. So you cover much more ground out hunting.

I have photographed wild animals in Kazakhstan, Kirghizia, Yakutia, the Caucasus, Askania-Nova and elsewhere in the Ukraine, in the Sayany Mountains, on the Volga, in the Baltic region and the North. But I perhaps derived the greatest satisfaction while photographing my native Moscow countryside. Probably because it was here I started my new career, suffered the first failures and scored the first successes. It was in the Moscow countryside that I got my first snap of a bison living in freedom, not in a pen. At different times I aimed my lense at goldfinches and bullfinches, bluetits

A forest fire in the making. After clicking his camera, the author had to pick up a spade and set about putting the fire out

and ducks, geese and black-cocks. And then I "shot" hares, foxes, elks, fallow-deer, roe-deer and wild boars. In the capital itself I photographed exotic animals — in the Zoo and in various menageries — lions, pumas, camels, monkeys, ostriches, eagles — and all these I count among my trophies.

But it is for the sable I feel most indebted to Moscow forests. Photographing sables, I acquired much valuable material and made the acquaintance of people whom I have since regarded as my teachers. After all, as they say, a teacher is not someone who teaches but someone you learn from.

Bears are still quite common in Russian forests. Meeting one is fraught with danger, but the chance to make a good photograph amply repays the risk

At the sable farm in Saltykovka I worked together with such master photographers of animals as Nikolai Nemnonov, Vassily Peskov and Oleg Gusev. These were people with an insatiable passion for hunting. Later I understood that this passion was the source of their energy, inventiveness and mastery.

The experience was highly illuminating. I discovered that an animal photographer must be more than a hunter. If we draw on film-making as a comparison, an animal photographer must be at once the film cameraman, director, manager, set-designer and at times even animal-trainer. In short, he must organise the process of photograph-

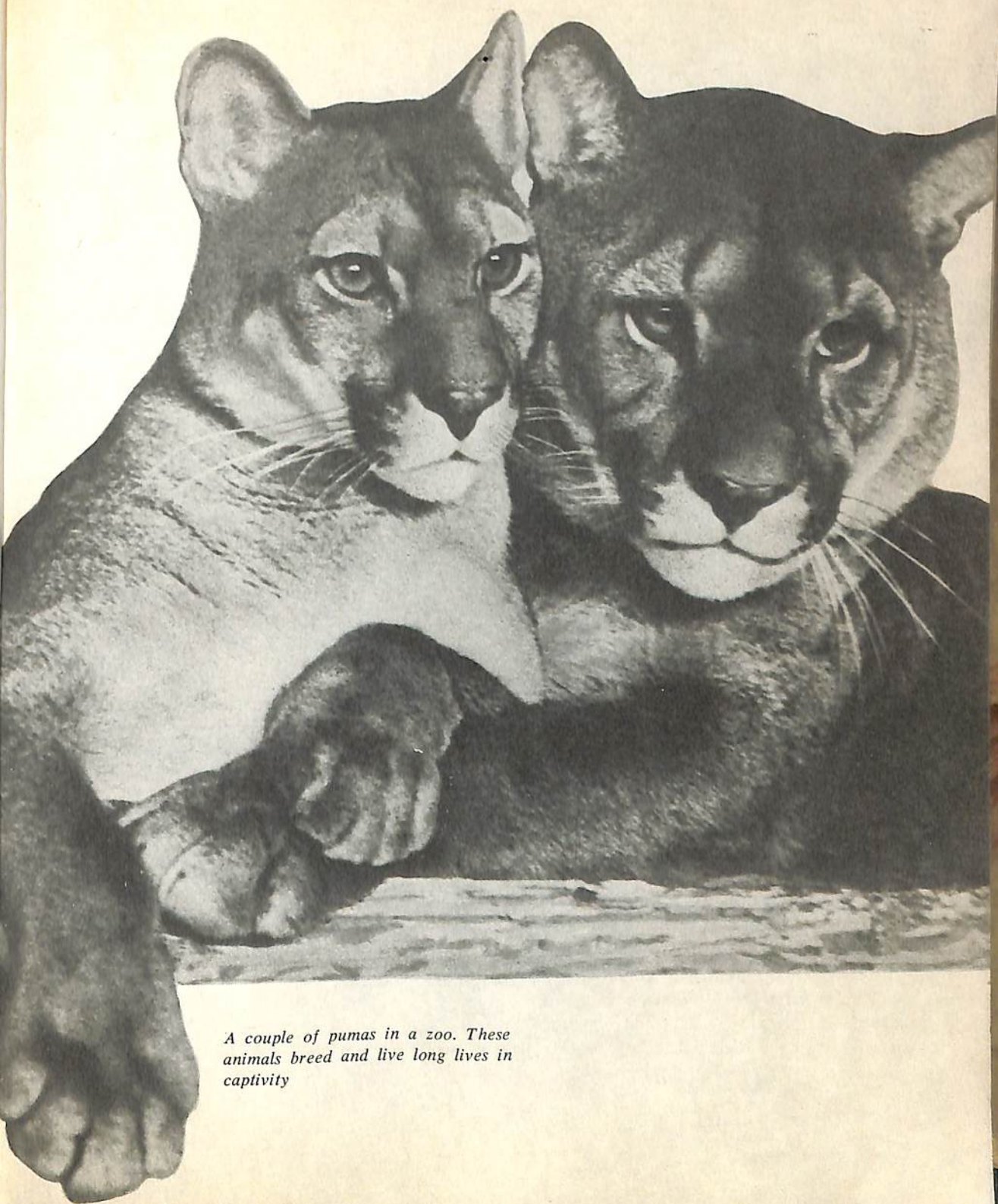
ing from start to finish. Even then much depends on luck. For instance, during our first session Nemnonov did not take a single snap. By the time the tame sable, which had been constantly scurrying from branch to branch for two hours, suddenly decided to sit still and could be photographed both of Nemnonov's cameras refused to work because of frozen shutters (the frost was 30° C below zero). Nemnonov was out of luck. But I, a novice, was lucky. During the three minutes that the sable decided to "behave", I took 15 black-and-white photographs. Five of them were published in magazines. A month later Nemnonov came for another session. And he took some first-class colour photographs of the sable — real works of art.

I have not the space here to go into all the details of artistic photographing of animals. But I would like to mention one.

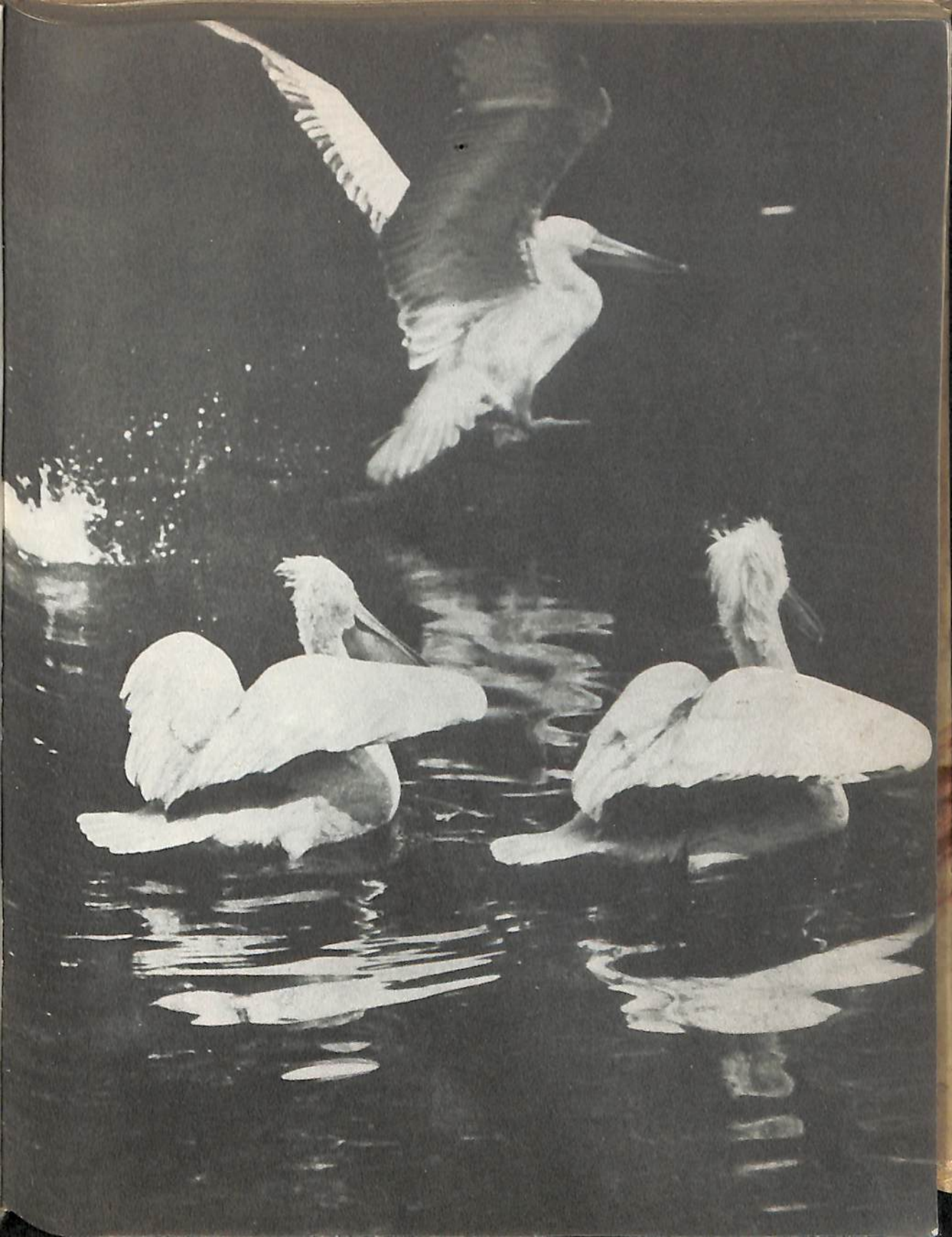
Very often, while looking at a rare photograph, people ask: "How did you manage to catch it like that?" "Where did you snap it?" Occasionally they refuse to believe it is an authentic photograph and say: "Don't you pull my leg — it must be a stuffed animal." I heard comments like that in connection with my photograph of wild boars. In the photograph there are two huge tusked heads of boars and their tiny striped baby-boar. Even animal experts insisted they were stuffed boars. So I had to show them my negatives. When I told them the animals had been photographed in a cage, they said disappointedly: "Oh, so that's how it was done! Anybody can photograph an animal in a cage!" It never occurred to them that the "anybody" had to find himself on a certain day and hour in Kirghizia, in the Zoological Centre of the city of Frunze, near the cage where the striped baby boar had been born during the night. In the picture it is only six hours old. And also one had to press the button at the precise moment when the animals assumed the required position.

So, does an animal photographer always work in wild nature? Is that an end in itself? I suppose answers to these questions will differ. Each photographer chooses his own method. As for myself, I believe that one must photograph wherever one expects to get a good picture. For instance, Nikolai Nemnonov has worked in wild nature a great deal. But at the same time he once photographed a tame otter on the edge of an ice hole with a cod's tail in its teeth painted to look like a perch. This colour photograph was reproduced and exhibited many times, and nobody ever questioned its authenticity. It is a truthful and highly artistic photograph. There is really no deception involved. After all animal-actors are used in films about nature, and animals perform in scenes contrived by their trainers. So I suppose we are allowed to contrive a photograph. The only rule is not to do harm to nature, animals and birds. We can't have photographic poaching! Yes, there really is such a thing. Hunting with a camera is, unfortunately, not always harmless.

In many countries serious restrictions have been imposed on nature photography. Photo- and cine-poaching, as any kind of poaching, is sometimes committed out of ignorance, but much more often it is quite deliberate and done for profit — that is the photographer is out to get a rare shot and then sell it at a good price.

You'd like an example? Take the pursuit in a helicopter of a rare crane during its nesting period. Or photographing colonies of walruses from an airplane or a heli-

A couple of pumas in a zoo. These animals breed and live long lives in captivity

A mountain goat from Daghestan, a republic in the Caucasus

A trio of pelicans

copter. The animals panic and many are trampled to death in the rush to the water. Or filming in wild nature preserves! It's not so bad when only one photographer is involved but when about fifty invade a preserve, with inadequate apparatus too, that is with cameras not equipped with powerful telescopic lenses, the outcome

An inquisitive macaque

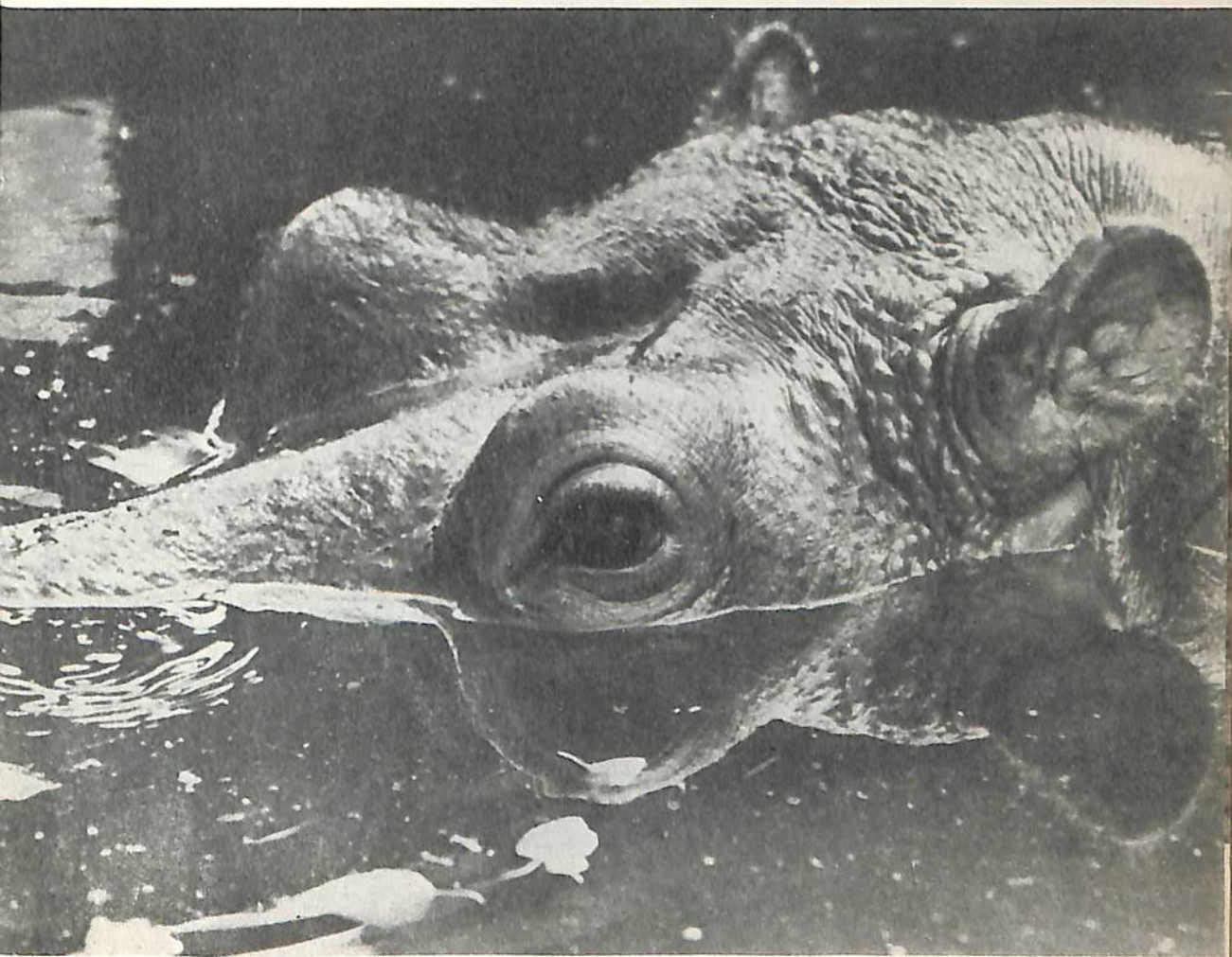
Hyppos are certainly exotic animals, but very reluctant models, even in a zoo

may be disastrous. They have to come within only a few steps of a bison or an elk. So there is great danger for the photographers themselves.

Does an animal photographer generally run a risk? Yes, he often does. Even when photographing in a zoo. If you don't know the animal's habits and inadequately protect yourself, you are quite likely to get hurt. In Askania-Nova I once saw an artist sketching an African ostrich. He was standing very close to the netting. Suddenly the bird gave the netting a mighty kick and its long claw pierced the man's forehead just above the eye. It was only by a miracle that he did not lose it.

I myself have been attacked, while photographing, by a roe-deer, a wild boar and a bison, but my knowledge of the animals' behaviour enabled me to escape unscathed.

However, an attack by an animal is not the greatest difficulty awaiting a man with a camera. He must know how to provide for himself in wild nature. He must

be able to spend the night in the forest, to make a fire and to safeguard it; he must be able to climb mountains and go down a river on a raft, he must know how to cook and to disinfect marsh water if there is no other available — he must be able to do all these things and a thousand more. In one book about Mikhail Prishvin,

a prominent nature writer and a passionate hunter, I read: "On the title page of M. M. Prishvin's first book *In the Land of Unfrightened Birds*, published in 1907, it is said: 'With 66 illustrations from photographs made from nature by the author and P. P. Polsunov.' Mikhail Prishvin's phototeque included over 3,000 negatives which had a direct bearing on his writings."

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It was Prishvin who first called nature photography "hunting with a camera", an expression now widely used in Russia.

Today anybody who has a camera takes occasional nature photographs.

The great Russian naturalist Kliment Timiryazev wrote, at a time when few

A coypu, one of the valuable fur animals which have been acclimatised in Russia

people knew about the existence of photography and most believed that nature's treasure store was inexhaustible: "I am convinced that the time will come when people will roam forests and fields with a camera rather than with a gun slung across their shoulders."

Many townspeople have never met the dawn in a forest or steppe, or seen fish splashing at sunrise, or heard the black-cock's mating song or seen cranes dancing.

Of course, even the most artistic photograph will not supply ecological knowledge. But it will arouse an interest in nature, a desire to observe and to study it.

One can certainly say that it is possible to *love* nature even without knowing it but quite impossible to *protect* and *preserve* it without knowledge. I think intelligent

A red deer in the Belovezhskaya Puscha wild nature preserve

A herd of rare gazelles, jeirans

nature photography is an effective method of studying nature.

Besides technically faultless execution, a photograph must have content and artistic expressiveness. This is the most important and most difficult aspect. So from the very beginning one has to pay attention to the composition.

Here one can best learn from the works of outstanding photo-artists. A thorough analysis of their experience and preliminary planning will help you to greatly improve

the quality of your own pictures. By the way, you need not think that photography, even artistic photography, is accessible only to a select few. Given perseverance and industry, anyone can achieve very good results.

And this is the raccoon proper

One major prerequisite is love of nature. If you don't have it, much will escape your notice.

Today animal photography has become an independent genre of artistic photography. In many cities of the Soviet Union there are photo-clubs where advice is given to novices, works are discussed and thematic exhibitions held. These clubs also put out a lot of information on ecology.

Every year all-Russia competitions of animal photographs are held. The winning

works are published in the central press and shown at international exhibitions.

And even so, good photographs of animals are still rare. Newspapers and magazines badly need them, and so do clubs, schools, community centres, sanatoria and holiday homes — for in all these places work in the ecological sphere must be carried out.

From rock paintings of primitive men to modern photography there is a time-gap of many millennia. And throughout this barely comprehensible span of time Man has derived pleasure from portrayals of animals. Just think of the innumerable portraits of animals, animal sculptures and photographs which have become part of our cultural heritage.

Animals are only a section of our natural environment. A small section. Yet without them our life would be unthinkable, as it would without air, water, and plants. It is impossible to fully appreciate Beauty without taking into consideration their diversity and harmony of form. Perhaps this is why we surround our young children with bunnies, foxes, tiger-cubs and dogs made of wood, plush and plastic. You also see them in book illustrations, magazines, on picture postcards. Adults often envy today's children, surrounded by such wonderful toys and colourful books. What lovely animals! And a grown-up will cuddle a fluffy teddy-bear, almost as big as a real bear-cub, or immensely enjoy leafing through a handsomely illustrated book. It would seem they should have grown out of it. And yet they enjoy pictures of animals. So there must be some deep inner need.

Why? Is it merely a matter of external attractiveness? By the way, not all animals arouse the same emotional response. You will agree we are not likely to want to pat a tiger or pick a cobra up. Still, by observing them, we get a better idea of the world of wild nature. Similarly, by photographing animals and looking at these photographs we study the complex manifestations of life.

So, to everyone who has taken up photo-hunting, I wish good luck and a bag.

The Wounded Fir-Tree

The wood near Moscow where this fir-tree lives, is very young, and, to a casual glance, quite ordinary. It stands on the busy Rogachev Highway near the village of Udino, a mere 40 kilometres from Moscow.

In summer you may see cows under the trees — there is a milk farm nearby, or hear trumpets playing in the "Forest Republic" Pioneer Camp. There is also a holiday home hereabout, and its residents, young and old, go for walks in the wood.

I had been to the wood a number of times and thought I knew it well. But once a friend of mine brought me to this fir-tree. A rusty mine, which seemed to have grown into the wood, was sticking out of its trunk.

The sight immediately brought to mind other vestiges of the war: old trenches in the wood, crumbling and overgrown with grass, a modest obelisk by the highway, war veterans with ribbons on their chests, holding flowers... My memory took me

back to those far-off days when, as a young child, I had examined the bomb fragments my brother had picked up on the roof of our house in Moscow, when I had watched the searchlights converging on an enemy bomber in Moscow's night sky, and later, in evacuation in a town on the left bank of the Volga, waved to an infantry regiment marching off to Stalingrad.

A relic of the war

Many years have passed since, but millions of hearts still respond to such memories with pain and anger. There is no sadder memory on earth.

How old was the fir-tree when the lethal metal became lodged in its body? A little over forty years have passed since. The fir-tree seemed to be about sixty...

They say these woods saw fierce battles.

The fir-tree stood fast — together with the soldiers, the capital city, the entire Russian people. Now it is a tall strong tree. A veteran. Only instead of a medal it has this terrible rusty growth. It is still frightening. Many have seen it. But nobody has dared to try and remove it. What if the damn thing exploded?

My friend and I examined the mine and the tree trunk. It did not look as if anyone had attempted to remove the mine. What a good thing that even the boys had had the sense to leave it alone!

I showed this photograph to a military man in 1981, the year we marked the fortieth anniversary of the Battle of Moscow. He looked at it attentively, then sighed.

"Imagine... A live memorial... After all these years..."

"Is it dangerous?"

"Not any longer. It is the stabiliser, the tail end of an anti-personnel mine. The warhead has exploded, the fragments are gone... Yes, it is a sacred monument. It should be seen by as many people as possible."

Enthusiasts

The Song of the Willow-Wren

Winter. Heavy caps of snow are bending the tree branches. The telephone rings. There is a crackling noise and I hear my friend say, "Just a moment. I've found it — here it is."

And I hear the humming of the spring forest and a clear bird-song. The song is very simple but pure and bright. It is a little like a finch's song, but this is not a finch, it's a willow-wren, the most sweet-voiced of all wrens.

Listening to it, in my mind's eye I saw a tall man with a broad grey beard, walking through the sodden forest, stopping now and again to listen to the birds singing.

Suddenly a small brown-grey bird with an arrow-like body flew up onto the top of a birch-tree and uttered a loud defiant "Fewt!" It paused an instant and then broke into a series of short clear whistles, which sometimes blended into a short trill.

The man stood listening, his head bowed, a serene smile on his face.

The willow-wren... He regarded it as a special bird among all songsters of Central Russia. Why? He probably did not know himself. Simply he was very fond of the bird, as he was fond of all nature, which had also given birth to this tiny creature.

"He knows the habits of all birds. And can explain them. As for warbles, trills, whistles and all other bird music, there is no other expert like him in all Russia. He is a magician, that old man." This was how he was described by the wonderful Russian writer Konstantin Paustovsky.

Until the end of his life this expert and magician used to go into the woods to listen to birds' voices. Until the end of his life he studied nature and taught others to love it and to learn about it.

Several generations of biologists are proud to have been pupils of Professor Pyotr Manteufel. Privately they referred to him lovingly as "Uncle Pete".

The name was given to him by the young naturalists at Moscow Zoo where he started work in 1924 as Head of the Ornithology Section. Soon he became Assistant Director for research and undertook to supervise the work of the newly-created Group of Young Biologists at the Zoo. He was then forty-two and already had vast experience of biological research.

Professor Manteufel developed an interest in animals, their way of life and habits when he was still a child.

He was fortunate enough to have talented teachers at school, who supported this interest, which led him to Petrovsky Agricultural Institute (today the Timiryazev Agricultural Academy). Among his teachers were Academician V. R. Williams[12] and the prominent zoologists M. A. Menzbir and S. A. Buturlin (he attended their lectures at Moscow University). After graduating from the Institute as an agronomist and soil expert, he worked with expeditions in Kazakhstan and Siberia, studying soils, plants and animals in those regions. Gradually the young agronomist became a naturalist with extensive knowledge not only of agronomy but also botany and zoology. Through his industry and inquisitiveness he accumulated, in a comparatively

short time, a vast collection of observations of wild nature. It was not easy, considering that his youth coincided with a tempestuous time in our country's history. In 1914 he was called up and sent to the German front. After the Revolution he served in the Red Army, fighting the White Guards and interventionists. He knew the price of peace and creative labour.

In the '20s Manteufel worked as a soil expert. For a while he was head of a V. I. Lenin propaganda train, giving talks to the peasants about the state's agricultural policy. These years prepared the young scientist for the main work of his life.

The young Soviet republic needed specialists who could use the achievements of science to develop the national economy more rapidly. It needed competent and energetic people, real enthusiasts, who were not afraid of difficulties and who were totally dedicated to their work. The small group of young biologists at the Moscow Zoo became a centre for training such specialists.

Manteufel arranged for prominent biologists to give talks to his group. The young biologists went on expeditions, wrote scientific papers, and built up a card index of their observations. Also they helped the Zoo's employees to feed the animals and clean the cages. Each had an animal in his special charge which he observed day in day out.

It was interesting work, besides being extremely useful.

The other day I met three first generation members of the Young Biologists' Group and asked them to tell me about Manteufel.

Elena Ilyina, Professor of the Department of Fur Animal Breeding at the Skryabin Veterinary Academy in Moscow, said:

"I joined the group in the year it was set up. Uncle Pete was, of course, our chief instructor and tutor. He taught us to conduct observations methodically and draw correct conclusions from them. He impressed upon us the importance of noting not so much things that were perfectly obvious, but small things which could be of practical use.

"If our results did not tally, he made us repeat experiments, change conditions, check and double-check our data, so as to arrive at an indisputable conclusion.

"At the same time Uncle Pete weaned us from our blind veneration for authority, from 'fitting' our data to suit somebody's opinion. He encouraged us to stand by our views.

"It sometimes happened that our observations contradicted suppositions which had been made by Uncle Pete himself. The youthful experimenter, when accused of having 'doctored' his findings would plead: 'But Uncle Pete, didn't you say yourself!' To which followed an ironic rejoinder: 'So what? Haven't you a mind of your own?' He taught us to be honest and brave, not to retreat before difficulties, not to prevaricate.

"Some members of the group were allowed to conduct tours of the Zoo. To obtain permission for this one had to pass a stiff examination. We studied the biology and specific features of all animals in the Zoo. The most difficult job was to determine, by outer appearance, the females of the many species of ducks (there were more

than ten) in our ponds. They all looked very much alike. We had to memorise the little distinguishing traits of each, so as not to disgrace ourselves should there happen to be a specialist among the visitors.

A spring song

"Quite often Uncle Pete slipped into the excursion as an ordinary visitor and started asking tricky questions. If the guide got nervous and started making mistakes, Uncle Pete would say nothing, but later, sometimes a long time later, he would remind the culprit of his mistake and poke fun at him. This kept us on our toes, and so it was for a good reason that the young biologists were regarded as the best guides at the Zoo.

"I chose fur-bearing animals as my speciality. I have worked at animal farms and in the Ministry of Agriculture.

"For the last twenty years I have been teaching. But whatever I've done and wherever

I've been I have always felt the great benefit I derived from the Young Biologists' Group and my work as a guide at the Zoo. It was Manteufel's school which made me a specialist."

Vera Chaplina, a children's writer, said:

"I would not be exaggerating if I said that Professor Manteufel determined my path in life and my career as a writer. This is how it happened.

"I became very fond of animals as a little girl, and later, when I started school, I often went to the Zoo and stood for hours in front of the cages. I particularly liked wolves. I even tried taming one and was amazed at the animal's response. It was only later that I found out that the wolf *was* tame. Well, once, as I stood in front of the cage "making friends" with my wolf, a stranger came up to me. He was Manteufel.

" 'I see you like animals,' he said.

"I nodded shyly.

" 'Would you like to learn about them? Come to our group.' And he gave me a note. And so I became a member of the Group of Young Biologists at the Zoo. That was in 1924.

"It appeared the professor had been watching me for some time. To this day I am amazed at his sensitivity and talent for finding a common language with young people. He was loved, respected, obeyed, feared and trusted by the most irrepressible pranksters.

"Take me. I was not too diligent and my marks at school were not up to much. I had most trouble with writing exercises — my notebooks were full of ink blots and rubber holes.

"When I asked Uncle Pete to allow me to take care of some animal, he told me to bring my notebooks. He leafed through them, gave me a reproachful glance and said: 'You must learn to be patient. Unless you do you'll never be able to work with animals. You will have to make a clean copy of these notebooks.'

"Well, I copied them all — and got my first good mark in Russian. And I was given a wolf-cub to rear. Its name was Argo. I found that the work required inhuman patience. It was torture. I cleaned Argo's cage and talked to him for hours, but many days passed before he condescended to take a piece of meat from my hand. After finishing school I worked at the Zoo for many years. In 1933 I conceived the idea of opening a playground for young animals. Uncle Pete supported it, and the playground was set up. It gave us wonderful opportunities for studying the group and individual behaviour of different young animals.

"The wolf Argo and many other animals later became the heroes of my books. So I really owe my writing career, too, to Professor Manteufel."

Alexander Kuzyakin, Professor of the Chair of Zoology at the Krupskaya Teacher Training College, said:

"From the age of fifteen I worked at the Moscow Zoo as a taxidermist. At the same time I studied at an evening school. I lived on the Zoo premises too (my family was in Omsk, Siberia). I joined the Young Biologists' Group. For me it was an important time when I had to decide upon my future profession. Professor Manteufel played a crucial role in this choice.

"Initially I had left Omsk for our famous wild nature preserve — Askania-Nova. But my money ran out before I reached Askania-Nova, and so I went to Moscow Zoo and got a job there instead. Once the manager of Askania-Nova preserve came to Moscow on business and, finding out that I had intended to seek employment there, said: 'Do come to us, we need people badly, there's so much needs doing.'

"I went to Uncle Pete to ask his advice. 'You must decide for yourself,' he said. 'I suggest you think well before going. You wanted to get an education, didn't you? And they only have a secondary school there. There is a greater choice of schools in Moscow and any number of colleges. But you must decide for yourself.'

"I thought the matter over and decided to stay in Moscow. Manteufel talked to us young people as an equal. He taught us to think for ourselves and take decisions independently. He would suggest, unobtrusively, the most rational line of action, but never lectured or admonished us.

"At the Young Biologists' Group we learned not only from our instructors and Manteufel, but also from one another. Some were fond of the theatre, others of books, still others of sports. We infected one another with our enthusiasm. Uncle Pete encouraged this in every possible way. And of course our greatest love was for nature and animals.

"Professor Manteufel gave us more than knowledge: he instilled in us his own diligence and dedication.

"We once asked him why he wrote so little for the newspapers and journals.

"He pondered sadly for a while, and then smiled gaily and replied with another question: 'And who will work on you lot if I sit writing all the time?'

"And he did work on us, with his talks, lectures and discussions, shaping us into future biologists, hunting experts and fur-animal breeders. He invented experiments, organised expeditions, and wisely guided us towards our future professions.

"When I had finished the course at the evening school, I went to Uncle Pete for advice again on whether I should try for the Biology Department of Moscow University, or the Department of Hunting Science at the Fur-Animal Institute.

"Uncle Pete gave me a sly glance and said: 'I haven't a cue! But what sort of hunting expert do you hope to be?'

" 'Why?'

" 'You don't like hunting.' He paused, then suddenly pronounced, 'But you will make an excellent zoologist. You've got what it takes. You're always trying to get at the roots of things. That's good.'

"So I applied to the University. I wrote my PhD in my third year, although I could not defend it until I had got my diploma. For many years I studied the biology of bats and their effect on agriculture and forestry.

"Very many of us at the Young Biologists' Group were helped by Professor Manteufel to discover our true vocation.

"In our everyday meetings we learnt from him to be painstakingly and scrupulously neat. At the Zoo I noticed that he wrote down his observations every day, and sat over them till late at night. During the day he constantly jotted things down in a memo

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book. He worked a lot and probably got very tired, but I never heard him speak irritably or scold anybody.

"He treated us young people like his own children. He had no favourites, all were equal in his eyes, including his son Boris, now a major ichthyologist, a Professor, and winner of the Lenin Prize.

"Humour and wit were greatly appreciated by our group. Pyotr Alexandrovich always spiced his speech with jokes, whether it was just a chat or a scientific lecture. He was an excellent speaker and had a gift for firing his pupils with his own enthusiasm.

"Well, and he fired us with enough enthusiasm to last us all our lives."

Under Professor Manteufel's guidance, members of the Young Biologists' Group not only studied biology, but also helped to tackle important economic tasks.

It was at Moscow Zoo in 1929 that the first litter of sables was obtained. Manteufel had evolved a system of study of this valuable animal and with the help of his young assistants had resolved the major problem of inducing the sable to breed in captivity.

This helped to set up an important new branch of fur-animal farming — sable-farming. Manteufel's studies later came in useful in work with other fur animals. The Zoo's young naturalists studied the biological features of foxes, polar foxes, hares, reindeer, established the necessary doses of sedatives, ascertained the effect of strong-smelling baits on fur animals. All this information was greatly needed by fur-animal farms and hunters.

For ten years Professor Manteufel directed all the research at the Moscow Zoo. He built it into a major biological science centre and reared a whole generation of naturalists. Many zoologists worked here, expeditions were sent out, experts in hunting and fur-animal breeding, zootechnicians and biology teachers came here for advice.

Help and advice were also given to the organisers of zoos in other cities.

Here, for instance, an excerpt from the autobiographical story "A Lodge in the Forest" by the well-known Soviet writer and naturalist Maxim Zverev:

"I was excited at the idea of going to Moscow and working with Professor Manteufel himself. At last the day came when I opened the door of his office.

" 'You're just in time!' Uncle Pete exclaimed, hugging me. 'Go to Alma-Ata at once and help them set up a zoo — it won't take more than two months!'

" 'But I'm not authorized to — I've just left my job at the Novosibirsk Zoo, and I haven't started work here yet!'

" 'Never mind, consider yourself on the staff as of today, and we are sending you there for the job. Actually, it's just as well — the living accommodation for your family won't be ready for another six weeks.'

"I stood there, stunned, while Uncle Pete said to the middle-aged Kazakh, sitting on a sofa in the corner of his office:

" 'Meet Comrade Zverev, Comrade Tolebayev. He's an experienced zoologist, he'll help you with things. I'm sending for the tickets right away.'

"Although I had not yet given my consent, Uncle Pete now proceeded to practical matters:

" 'Come on, let's walk round the Zoo. I'll show you which animals we can loan them.'

"The three of us strolled along the Zoo walks. Uncle Pete showed us animals and birds and kept up a lively commentary, and, for his part, asked about Siberia and promised to come and help with the zoo's design (and he kept his word, too).

"Suddenly a duck emitted a desperate cry on the pond. A crow had caught a tiny fluffy duckling from a late brood and was carrying it in its beak right above our heads. Manteufel reacted in a flash by hurling his walking stick at the crow. The bird instantly let go of the duckling which fell plop at our feet, unharmed, and darted off towards the pond and its mother.

" 'That's odd,' the Kazakh said in surprise. 'Why wasn't it smashed to death?'

" 'Day-old ducklings haven't started eating yet, and they're so light, they're like tiny parachutes — they can spread out their webbed feet, flap their embryonal wings and land safely,' the professor explained.

"That evening I left for Alma-Ata. Uncle Pete saw us off at the Yaroslavl Railway Station..."

In 1936 Manteufel left the Moscow Zoo and became the Head of the Faculty at the Moscow Zootechnical Institute (later renamed Fur-Animal Institute). For 20 years he trained future hunting experts and fur-animal breeders.

He evolved methods of increasing the population of valuable animals and birds. The acclimatisation of the musk-rat, the coypu and the American mink, and the reacclimatisation of the beaver and the sable in the USSR are largely associated with the name of Professor Pyotr Manteufel, winner of the State Prize, Merited Worker of Science of the RSFSR.

In essence, he laid down the fundamental principles of the strategy for enriching nature, which in our country has become general state policy as regards natural riches.

Professor Manteufel achieved a great deal in his lifetime.

A teacher, a director of a research team, a fine researcher, the founder of a new branch of science, he wrote reviews, edited many publications and research papers, assisted in the making of popular-science films. Besides, he was a very active supporter of the cause of nature conservation. How one man found the time for all these pursuits is hard to imagine.

But the most important heritage he has left are his pupils, who are now continuing his work and passing on their knowledge to others. Good seeds also give bumper crops.

As Stanislav Inshenetsky, Candidate of Biology and Manteufel's pupil, told me:

"It is commonly thought that Pyotr Alexandrovich did little creative writing. Unfortunately he himself shared this opinion and said as much in the inscription in the copy of his book he gave me. But it is not true at all. He wrote a great deal, but he did not publish much. He simply did not have the time. He wrote many reviews and kept a diary. And he published several books: *The Sable, Stories of a Naturalist, The Life of Fur Animals, Notes of a Naturalist*. They're all superb popular science works. Any small story from any of his books is a theme for a candidate's thesis. What wealth

of observations, ideas, discoveries! And what a lucid and laconic style he had!"

To the end of his days Manteufel maintained ties with the Moscow Group of Young Biologists and the entire young naturalist movement in the country. He often spoke to children, he contributed to the magazine *Young Naturalist*. Dozens of young nature-lovers learnt much from this wonderful man and, following his precepts, are now working to enrich the nature of our country.

...A new spring will come, and a chorus of feathered songsters will break out into trills and warbles. And, as always, the small brownish-grey bird will pipe its simple song. May the willow-wren never fall silent in our woods!

The Magic Island

I first came here as a grown man, at the request of my four-year-old son. That was twenty years ago. What I saw was really staggering: near the very centre of Moscow, nestling among tall apartment houses and traffic-filled streets, was a magic island, almost a fairy-tale kingdom.

A huge friendly elephant rang a bell, placed a huge thermometer in his armpit and took his temperature; mice got onto a toy train and went off for a pleasure-ride; a black raven, when asked, "What's your name?" answered in a deep bass, "Varrria, Varrria!"

That time we did not manage to see the performance in which animals and birds were the principal actors. It was shown in a tiny auditorium, which only held about 40 people, so only a small percentage of the visitors were able to get in. But instead we spent a long time in the garden admiring the trained animals.

There were people in circus-style costumes bustling around the cages.

"Look, there're the trainers," one of the visitors said with admiration.

Then some of the tiny tots piped up: "Show us what your dog can do!"

"He's a mathematician," the dog's trainer answered.

"What?"

"Well, ask him to do a sum."

"Five minus two!"

The children stared doubtfully at the small shaggy dog which looked quite ordinary. The trainer smiled.

"Very well. Come on," he said to the dog, "five minus two — what will that be?"

Without a moment's hesitation the dog barked three times. The children clapped delightedly.

My little son, who was not yet very good at adding and subtracting, tugged at my sleeve:

"Did he count right?"

"Yes, quite right," I said. "See how good it is to be able to count. The dog's earned himself a piece of sugar. You ought to learn to count too."

"Yes," my son agreed with a sigh.

"Perhaps you'll become a mathematician too?" I said.

"Perhaps," he said with another sigh.

But he did not become a mathematician. He became a fur-animal expert. And that visit to the menagerie possibly influenced his decision and helped him to choose a profession. And many more children, too.

"The corner of kindness and joy" was the name given to this magic island by the wonderful Russian circus clown and animal-trainer Vladimir Leonidovich Durov (1863-1934). At the beginning of this century he bought an old mansion with a garden and stables in a quiet little Moscow street. In 1912 he opened an unusual children's facility here that came to be known as "Grandpa Durov's Animal Corner".

Vladimir Leonidovich Durov was a man of diverse talents: an actor, a zoo-psychologist, an artist, sculptor, musician and writer. He devoted his life and all his talents to the study and training of animals.

He evolved an entirely new method of training in which the animal was not forced to obey out of fear of pain. The main incentive Durov used were rewards in the shape of little tidbits. This method enabled him to achieve unprecedented results.

An old poster hanging in the Corner shows Vladimir Leonidovich with a group of very different animals. In his menagerie cats were friends with mice, dogs with cats, foxes with hares, cockerels and geese, and a monkey rode astride a pig. Durov was the first to bring into the circus arena species of animals which had been regarded as unsuitable for training. His performers included a hedgehog, an ant-eater, a polar bear, a coati, a porcupine, a coypu, a hyena, cranes, storks and a lot of other wild and domestic animals.

Some people accused Durov of substituting hunger for fear in his training methods. This was quite wrong. Durov never worked with hungry animals. Actually, you cannot get much response from hungry animals. But animals with good appetites are eager to perform for a tidbit. They trust their master and perform quite complicated tricks to earn his praise and rewards. This is the essence of Durov's method, the most humane and effective method of animal-training, when man and animal are friends. That was why Durov was successful where trainers of the old school had failed.

Vladimir Leonidovich was the founder of a world-famous dynasty of animal-trainers who have continued his work and followed the motto he formulated back at the beginning of the century: "Instruct through play." This motto has become one of the mainstays of the unique Animal Theatre.

In recent years I have been a frequent visitor there. The manager and art director is Vladimir Leonidovich's granddaughter Natalia Yurievna Durova, a People's Artist of the RSFSR and a well-known children's writer. She is often asked which profession comes first with her — that of an animal-trainer or writer, and each time she answers that her heart is equally divided between the two and she cannot give preference to either.

She began appearing in circus acts well before she learnt to read. And she started writing stories while still at school. At first she wrote them for herself. She wrote because she felt an overpowering compulsion to write about the animals she loved and knew so well.

In a school composition she once wrote about a Siberian forester who sold a small bear-cub to her father, the famous animal trainer Yuri Durov. The story was so good that the teacher refused to believe the girl had written it herself and gave her a bad mark for copying someone else's work. Only after special scrutiny was justice restored. This was in fact the first mark of recognition of Natalia's literary gift.

Pel the postman

After school she was accepted at the Gorky Literary Institute,[13] no mean accomplishment. While studying there, she contributed to the youth magazine *Smena* and had her first books for children published. And during the holidays she appeared with her father in the circus arena.

Natalia Durova has written more than 15 books for children including *The Big Small Theatre, Kolka the Leading Man, The Death of Old Yambo, Chichi the Mischief-Maker* and the autobiographical long story *Your Turn!* Natalia Durova's books tell about the Soviet circus, its performers, trained animals, the work of an animal trainer and, of course, about children. They reveal to their young readers the special world of the circus, and encourage hard work, kindness, courage, honesty, comradeship and love for nature and all living things.

At present Natalia Durova is writing a new book — *Twenty-Nine Minutes.* It is a sequel to *Your Turn!* Her act with sea lions and a walrus lasted exactly 29 minutes.

She has also written a book about the acrobat Ivan Shepetkov, a hero of the Second World War *(Battle in the Intermission)*. *My House on Wheels*, a collection of short stories, is one of her most recent publications.

"My grandfather," she recalled, "called himself 'the popular clown'. Other people titled him 'the king of clowns, but not the clown of kings'. Serving the people was the meaning of life for all members of our family. I first entered the circus arena with my father at four. And ever since my life has been connected with the circus, 'Grandpa Durov's Animal Corner' and animal-training. These are the things I write about.

"My plans? I have lots. For instance, I want to set up a school for animal-trainers — the first of its kind in our country. I want to open a laboratory studying animal behaviour patterns. I want to conclude the work on Vladimir Leonidovich Durov memorial museum. I want to build an oceanarium for sea animals.

"And of course I intend to work on new acts, help young animal-trainers, and work with my animal and bird artistes. I intend to put on entertaining and instructive performances that will give joy to both young and old and instil in them kindness, honesty, diligence and love for animals. I have lots of plans, and a great deal of work ahead, hard but very satisfying work, and, moreover, work that is needed by people."

Her office is always full of people, and the telephone never stops ringing. She is visited by workers of the theatre, set designers, composers, script-writers, builders, electricians, props people and accountants. New acts are invented here, books written, observations of animals and birds analysed and systematised. Days for filmings are appointed, new scripts are conceived and animals are even trained here. In other words, life here is varied and full.

In the photograph you see Natalia Durova with the chimpanzee Bom. A telephone call has interrupted the lesson, but the training goes on. Natalia Yurievna is in the middle of a serious business conversation, and Bom is aware of this and behaves with admirable restraint. In this picture nobody is posing: work goes on and the photographer is completely ignored. They know the meaning of work here. The theatre is a place where hard work is honoured for it is the only key to success.

I was once present when Natalia Yurievna was conversing with journalists. On her desk stood a cage with a tiny monkey-like creature with huge eyes — a galago lemur.

"Please, meet Syupa," Natalia Yurievna said to her guests. The lemur gave the guests a most amusing stare.

"Say hello to our guests, Syupa!" ordered Natalia Yurievna, making a barely perceptible gesture, and the lemur rose on his hind legs and lifted his forepaws. It was immediately rewarded with a fat meal-worm.

"I must make him aware of this movement," the trainer explained. "So far it's accidental."

Later on, in the course of the talk, whenever Syupa rose to his hind legs of his own accord, the trainer, who had not seemed to be paying any attention to the animal, dipped her hand into the jar and gave him a reward. Not once during the two-hour

talk did Natalia Yurievna leave the lemur's "work" unrewarded.

How do animals get here? In various ways. Most arrive from zoological depots. But quite often they are brought as gifts — by children and adults.

I myself helped to find a home for a young sable. Its owners were at their wits' ends. If they gave it to a fur-animal farm, it would be killed in autumn for its pelt because it was not suitable for breeding purposes. If they gave it to a laboratory, it would become an experimental animal — not an enviable fate. If an animal-lover took it, he might not prove able to care for it. And then I conceived the great idea of giving it to Durov's Corner. Of course! It was the best place. This was a special sable. People had reared it with love and care. In the Corner it would be happy, and it would serve a good cause — children.

But what if they refused to take it? They already had one. With great misgivings I phoned Natalia Yurievna.

"Of course we'll take it," she said. "Such a rare animal. Bring it here by all means."

The sable Tishka has been living at Durov's menagerie for several years now. He is healthy and in good spirits. His former owners come to visit him. Tishka has not proved suitable for the stage (he is too liable to bite, even though he can do several simple tricks), but he is a valuable asset to the menagerie. The she-sable Krasava, which was reared by Svetlana Lvovna Sheinina from a baby, is absolutely tame and

Natalia Durova with the chimpanzee Bom

has a chance of "making it" on the stage. Not all zoos keep sables for they are very hard to look after. But they manage well enough at Durov's Corner.

Today the troupe of the Animals' Theatre numbers some 260 animals and birds of over 50 species. The cast which includes goats, pigs, raccoons, badgers, bears, crows, parrots, foxes, various monkeys, a donkey, and a pony is continually replenished. There are also some exotic animals such as: two young leopards, a puma, pelicans, a kangaroo, a tigress from Sumatra, a tapir and sea lions.

A very rare animal, included in the Red Data Book, is now undergoing training. It is a dwarf hippopotamus. Her name is Kapaiya (Kappi for short) and she weighs about 300 kilograms.

"Call that a dwarf?" one of the visitors exclaimed in amazement.

They explained to him that of course Kappi was a dwarf compared to the ordinary hippo, which weighs all of two tons.

Kappi is very lively and temperamental, and training her is not easy. Still, she has already learnt to sit at command, open her mouth and bow. But best of all she likes to eat her fill and wallow in the bath.

The seven-year-old she-elephant Manshula arrived at the Corner on New Year's eve. She was bought from a circus in Federal Germany. Transporting the elephant at the height of winter was difficult. Moreover, at the circus she had been harshly trained, and was bad-tempered and obviously tired. Once installed at the Animals' Theatre, Masha — the new actress's Russian name — began to change before everybody's eyes. Kind treatment, good care and plenty of food made Masha much more amenable, as well as fatter and more handsome. Natalia Yurievna herself is training the elephant with the assistance of Alexander Terekhov and Pavel Dudchenko.

Many people have asked Natalia Yurievna in my presence what traits of character a trainer requires, how one can become an animal-trainer and what the end object of his work is.

Natalia Yurievna emphasised that nobody is born an animal-trainer, they learn to be one. One needs special gifts, of course. An animal-trainer must be an artiste at heart. He must also be a teacher. After all, training essentially means teaching an animal. And animals, even of the same species, have their own individualities. Each has its likes and dislikes. One may be aggressive, another kind. One may be energetic, another phlegmatic. Some animals have a natural feeling for music.

"Take the wolf Danila," she said. "He is a singer. There are bear-dancers and bear-acrobats. It is important to find out the animal's capabilities and patiently and insistently develop them, building up an act. This requires a knowledge of zoology among other things. But the most important requirement for an animal-trainer of the Durov school is sincere love for animals. A grown person cannot be taught this. It is an inborn gift only enhanced by upbringing.

Of course, actor-trainers are artistes. Seeing them work on stage, many spectators have little idea of all the effort expended to make this performance so beautiful, elegant, witty and musical. The performance is the consummation of a trainer's

The young elephant Dasha is eager to learn

work. During the performance one is bright and cheerful, dexterous and self-assured. But what are the steps leading to this peak?

The care of the animals in the menagerie, their feeding and medical treatment is much like the work of stock-raisers and zoologists. On the one hand, it is hard

The wolf Danila and the Red Riding-Hood

physical work, on the other, it is a constant study of the animals, making records, rummaging in books, trying to find out as much as possible about them. Each animal-trainer is also a bit of a veterinary surgeon, a stock expert and a researcher. Moreover, he often has to invent props for his number and even make them with his own hands.

The staff of the Durov theatre is over 160 strong. Only 19 are trainers. They are divided into five groups. Each has approximately 20-25 different trained animals. These are so-called mixed groups. One group is stationary and gives performances at the theatre's building in Moscow. The other four go on tours. For instance, the group of Svetlana Denisova and Yuri Ananyev made a long tour of the Baikal-Amur Railway construction project, giving 112 performances in all.

The Animals' Theatre has now been moved to a handsome new blue palace decorated with copper sculptures of an elephant on top of a ball, a cockerel, a donkey, a bear and a goat. The theatre has a spacious foyer, an auditorium seating 450, and an excellently equipped stage in front of which, instead of the orchestra pit, there is a marble pool for sea animals.

The theatre's repertoire includes several performances: "A Forest Tale" tells about the life of forest animals; "Barmalei and the New-Year Tree" is a colourful New Year pageant with exciting chases and adventures; "Frightful Tales about Nazi Wails" is a satire about the defeat of the nazi troops on the approaches to Moscow in 1941.

There is also "The Wonder Gift", a performance in which a year-old elephant Dasha and a young Malayan bear, both gifts from the government of Laos to Soviet children, take part.

Dasha and the bear are a tremendous success with the audiences.

I met Dasha on a sunny day in the grounds of the menagerie. Her trainer, Alexander Terekhov, had taken her for a walk. It was her first walk after a winter in warm quarters. The young elephant gambolled about the walks, evading her trainer skilfully. Terekhov was worried — she was too excited, and might do some mischief. But soon the elephant's frolicsome mood subsided somewhat and I asked permission to take a photograph of her.

"Alright, only be quick about it," Terekhov agreed reluctantly. "It's time the little one had her lunch."

Flashes of welding came from the construction site nearby. Next to one of the pens the trainer's assistant Svetlana Scherbakova was using a vacuum-cleaner on the donkey Maika. On the training pitch Andrei Komissarov was encouraging a bear on a bicycle. A he-goat jangled his bell, a crow was crowing, a cock let out a loud cock-a-doodle-doo. It was an ordinary working day in an extraordinary establishment in the heart of a big city.

For many years there was always some construction work going on in the grounds of the menagerie as old buildings were restored and new ones built.

Now the reconstruction has been completed. The territory of the former Durov's Corner has been considerably enlarged. New modern buildings have sprung up beside the old mansion house. The Durov animal railway has been reopened — a side-show of its own. The driver, conductor and passengers are all animals. The mice railway has also been restored — with a new shiny locomotive and little carriages filled with rats and mice running over a fairy-tale landscape. The small auditorium is for the youngest spectators aged between two and five. Actor-trainers here sing, dance, recite monologues as well as control their animal and bird co-stars. In the grounds of the menagerie children may ride in a pony-drawn carriage, and are even allowed to give treats to some of the animals.

The world's only Animals' Theatre now brings joy to thousands of youngsters.

Mamulashvili's Garden

We travelled all the way to the Georgian town of Mtskheta just to see this garden, which is famous far beyond Georgia. There are any number of gardens in the republic but Mamulashvili's garden is unique.

It is very much part of the ancient land of Georgia, of the majestic Caucasus Mountains, and Mtskheta, Georgia's ancient capital, standing at the confluence of Georgia's two largest rivers, the Kura and the Aragvi.

From the top of a nearby mountain you can see the Kura's valley bordered by mountain ranges. Not much grows on the mountains and it is not easy to cultivate land and produce rich harvests here. And yet the town is swamped in greenery.

Mtskheta is five thousand years old, and of course, attracts countless tourists, historians and artists. But weight of millennia doesn't seem to have oppressed it. Mtskheta lives the life of a modern town. Still, as the Georgians say, "The more new things you have, the more precious the old ones become." Mtskheta's ancient fortresses, hallowed by all Georgians, naturally make the town look somewhat like a museum. This museum is, however, pulsating with life.

Mtskheta grows younger with every year, and the old monuments only add to its beauty. The new buildings do not push the old ones into the background, nor does antiquity suppress the growth of young shoots.

The unique garden, one of Mtskheta's new attractions, is in a shady street not far from Georgia's most magnificent and famous architectural monument, the 11th-century Svetitskhoveli Church.

In terms of human life the garden is quite old, but in comparison to the city it is youth incarnate. Its beauty, freshness, profuse colours and original compositions all betoken youth. And all of it is the work of the garden's founder, Mikhail Mamulashvili, and his successors.

The memory of Mamulashvili is greatly revered in Georgia. He died eight months before his hundredth birthday (1873-1973). His long life was fruitful and beautiful.

His was one of the oldest and most peaceful professions on earth — he planted and tended gardens. What's more, he elaborated new principles of arranging plants in gardens. He also attained unprecedented mastery in the fine art of composing flower bouquets.

Mikhail Alexandrovich was more than a famous floriculturist. He was also an artist, a selectionist, a teacher and a bold innovator. And, most important, an indefatigable worker.

We came up to the garden gate just as a crowd of schoolchildren with their teacher were leaving it. The children were talking loudly, gesticulating energetically and laughing. Some held seedlings in their hands.

The work of "Grandad Mikho", as Mamulashvili was affectionately called, is being continued by his daughter Pelageya, or Peliko, as she is known in Georgia, who is a biologist by training. During the Second World War she was in Leningrad and endured all the horrors of the blockade, hunger and bombardments. Her father's behest — to bring beauty and joy to people — has become her life's credo too. Peliko is an accomplished floriculturist and decorator, and a subtle and refined artist. She has rallied together a group of enthusiastic helpers to carry out important and extensive work on developing young people's aesthetic values. That is why children are

such frequent guests in the garden. Beauty has an ennobling effect on the spirit. And creative work on the land is an excellent educator.

We were shown round the garden by a member of the staff — Natalia Baryshnikova.

"Look," she said, "the garden is quite small, one could even say it is tiny. But it has over a thousand different species of plants — fruit trees, shrubs, berry-bearing plants and flowers. And look at the amazing variety of compositions. Not one little detail is out of place."

Indeed, the flower compositions were wonderfully varied and delightfully harmonious. The flowers were quite ordinary — daisies, roses, carnations, but they were arranged in small baskets and Georgian wickerwork carts; some were grouped near a mossy tree-stump, others round an ancient cannon-ball, a clay pitcher or a semi-precious rock. The most unexpected objects were combined with plants here — a deer-horn, a cart-wheel, some broken crockery, drinking vessels overgrown with moss, sedum, selaginella, cacti and other succulents.

Mikhail Mamulashvili, we were told, was a major collector, and a very versatile one, too. He collected stones and ancient artefacts, and used them in his decorative designs.

His bouquets always paid tribute to his rich fantasy and impeccable taste. The poet Yevgeny Yevtushenko dedicated a poem to Mamulashvili entitled "The Art of Forming Bouquets". Here are a few lines from it, telling of the first steps made by the young Mamulashvili, an apprentice of a Swiss floriculturist:

He took some homely beet-tops, streaked with purple,
And wrapped in them a glowing golden rose.
What could be cruder, coarser, more discordant?
Yet, as he clutched his pruning knife, the Swissman
Knew that he was a mere cream-cake maker
Compared to this boy, an innate artist.

And a summary:

...And art is bold audacious combining
Of incompatibles, all rules defying.

Compositions of dried flowers have become a family tradition with the Mamulashvilis. They may be just small headpieces for a letter or a congratulatory postcard, with a few dried petals or flowers pasted to the sheet of paper. Or they may be large and complicated decorative designs, distinguished by their austere laconicism and wonderful expressiveness. These are works of a true artist with a style of his own.

The Mamulashvilis' live and dried flower arrangements won many prizes at national and world floral exhibitions.

The heritage of Mikhail Mamulashvili, Honoured Arts Worker of Georgian SSR,

is gaining international recognition, and the number of his pupils is growing both in this country and abroad.

The little garden in ancient Mtskheta is a source of goodness and beauty, a spring-source created by industrious and warm-hearted people.

Love Rooted in Childhood

"Any place on our earth is beautiful, even the desert, provided you have eyes to appreciate that beauty." The author of these words has travelled the length and breadth of the Soviet Union, and has also visited Africa, America, Australia and the Antarctic. He has been down to the sea bottom with divers and deep underground with coal miners. He has been to the North Pole, and climbed into a volcano's crater. He has sailed across oceans, flown innumerable times and walked thousands of miles with a knapsack on his back. And in all his travels he has always taken his journalist's pad and camera with him.

Vassily Peskov's articles on nature published in the *Komsomolskaya Pravda*, a newspaper for the young people, his appearances in the TV programme "In the World of Animals" which he has conducted for more than ten years, the dozen odd books he has penned — all take the reader or viewer on a fascinating journey under the guidance of a well-informed, wise and kind companion. He not only tells us about the animals, plants and people he met during his travels but opens our eyes to treasures which we often pass by indifferently as we go about our everyday affairs.

The main theme of Peskov's work is Man and Nature. But it is not the only one. In his book *A Journey with a New Moon* he wrote: "For a person who loves his country all is precious — the Old, the New, and the Eternal." This phrase provides a key to his work. Our history, our present life, the eternal beauty and preciousness of nature — all combine in Peskov's work in the vast theme of love for the mother country.

One of his readers wrote to *Komsomolskaya Pravda*: "When I meet something particularly lovely, I always think that as many people as possible should get to know about it, and that Vassily Peskov and no other should tell them, for then they are sure to come to love it as well." This is a very high mark of appreciation.

Peskov writes for young people but his reading public includes people of all ages and professions. And no wonder, as he writes about things that concern everyone.

Many years ago, in the article "Mother Country" he raised the question of protecting immortal works of ancient Russian architecture, which were often falling into disrepair and were even destroyed out of thoughtlessness and negligence. Many letters were then sent to the newspaper, expressing concern and indignation. The problem was heatedly debated in the press. Soon a Society for the Protection of Ancient Monuments was established.

Then there was his article "The Drama in Kurbsky Forest". It was bitter and thought-provoking. As the result of ill-advised aerial spraying of forests in Yaroslavl Region with pesticides many wild animals had died. Of course, we have to use

chemicals against pests, but if used thoughtlessly, they can become formidable enemies. Soon measures were introduced to ensure the strict control of the use of dangerous chemicals.

Nature conservation in the Soviet Union is a national concern. And Vassily Peskov is among its most ardent campaigners. His lyrical novellas about nature are imbued with love for all living things and urge people to look after their planet wisely.

This is how the future personages of Vassily Peskov's feature articles usually see him — with a pad and a camera, in clothes suitable for travelling

Peskov's favourite genre is a narration accompanied with artistic photographs. And the picture is much more than an illustration to the text. The sharpness of the author's eye and his capacity to see the unusual in something seemingly commonplace is quite astounding. Much in Peskov's world view is traceable to childhood. His love for nature, for one, is rooted in childhood. He grew up in the village of Orlovo, Voronezh Region. He was eleven when the Second World War reached our country. His father went to the fighting front, and his mother was left to care for their four children of whom Vassily was the eldest. It was as if an interminable black night had descended on the earth and his life.

Years later he wrote: "Childhood... We had it in spite of everything, us boys of the war years. Looking back now, I see childhood as a bright brook of life under the lowering skies. And I bend down to drink from it." In childhood he learnt to observe, to try everything out and master different things. Wartime village boys *could* do a lot of things. Along with adults, they ploughed, sheared sheep, repaired roofs, soled felt boots, looked after little children, cooked dinner, tended the garden, and did various minor carpentry jobs. In the collective-farm fields they weeded millet, harvested beetroots, threshed sun-flowers. All this on top of studies at school and the games a child simply must have. Hard times though they were, the world of

their childhood was vast and rich. The forest, the river, the campfires when they grazed the horses at night, the star-studded sky. Moreover, they had wise books, the stories of old men and women, all kinds of tales, jokes and sayings. The books were often read out loud, and if somebody read a book on his own, he was sure to retell it to his comrades.

Peskov stresses that the most important moral qualities are implanted in childhood. An adult often finds it impossible to fill in the gaps dating from childhood.

He has written a lot about present-day children ("The Boys' Raft", "Three Boys in a Boat", "Two Horse-Riders") and of the need to instill in children (even with a justified "degree of risk") courage, industry, a thirst for creativity and initiative.

There are no talentless people. A person is bound to manifest a creative spirit when doing something which absorbs his interest. It would be no exaggeration to say that the most precious human talent is the capacity to work with dedication.

Peskov's capacity for work is enviable.

Once he made a short trip along the Upper Volga.

"How did you get on?" I asked him over the telephone on his return.

"I wrote seven little sketches," he said. The "seven little sketches" proved to be a series of wonderful essays he later published under the general heading of *Cart-Tracks*.

In just a few days! Amazing!

His career in journalism has certainly been successful but by no means easy. This is probably why he has noted more than once that only hard-earned bread really tastes good.

For more than 20 years he has been a special correspondent of *Komsomolskaya Pravda*. He still regards himself as a journalist although he is a member of the Union of Soviet Writers. For his book *Tracks in the Dew* Peskov was awarded the Lenin Prize.

His stories (for his sketches and essays really are on a par with works of fiction) leave you feeling proud of the Earth's beauty and Man's good deeds and lofty aspirations. His books are full of optimism and humour. They urge people to be active in their search for happiness.

Happy Trophies

He had keen eyes and a firm hand. In his youth he was known as a crack shot. In the '30s he taught marksmanship in Moscow sports clubs. At that time he was a passionate and skilful hunter, especially for big game. And he also was a connoisseur of photography.

When the war broke out, he enlisted. In later years he disliked recalling his wartime experiences, obviously the memories were too painful. But once he told us about a hunting episode at war.

His unit was given a rest after days of bitter fighting. The front line had moved

far ahead. All around spring made itself felt. The air was tantalizingly suffused with peaceful smells of the awakening earth. Larks trilled all day long in the sky. In a nearby field, pitted with shell-holes, black-cocks sang their mating songs. One day a friend of his said with a sigh that a roast black-cock would certainly make a nice change from the porridge they always got.

So he went out hunting. To his surprise, the hunt, although quite successful, gave him no joy. He quickly bagged several cocks, and his friends delightedly examined the beautiful red-browed pitch-black birds. Many had never seen a black-cock before. Each wanted a feather as a memento. And suddenly these people, who had recently been in the thick of deadly fighting, grew pensive.

"That's nature for you! The war has just rolled over this place, and they're already singing."

And then he understood why the hunt had brought him no joy. He was not a sentimental man. But the birds would be boiled and eaten, while he would have liked to preserve their beauty alive, for the people to admire.

After the war he hardly ever used a hunting gun, although he occasionally attended training sessions and shooting competitions. He decided to become a different kind of hunter — a hunter with a camera. He started mastering the difficult art of nature photography at the age of 37.

He was — and is — perhaps the only professional nature photographer in the country. He photographs live nature in all the diversity. He is often called an animal-

Nikolai Nemnonov (left) photographing sables at a fur-animal farm

photographer. This is not quite true—he has photographed everything in nature, though he does give preference to animals.

The most difficult thing was the beginning. He did not have the necessary photographic equipment and had to design some gadgets himself. From old optical instruments he constructed a powerful telescopic lens. He designed a flash-gun with a beam of over 30 metres. He also invented and made many other useful appliances.

Real creativity is unthinkable without initiative, energy and ingenuity, without a constant readiness to overcome difficulties. For this one needs strength — both physical and moral. He possessed rare stamina, energy and capacity for work.

In the first post-war years the theme of nature was not too popular among editors. He got practically no orders. Besides, to obtain a good photograph of wild nature one has to travel. And so he joined parties of geologists, surveyors and geophysicists and covered thousands of kilometres with them. He also went with animal-catchers and frontier guards. He undertook all kinds of jobs so that he could be close to wild nature and to photograph it. He visited all the climatic zones of the Soviet Union. He photographed animals in the Arctic wastes, in sand deserts, in taiga forests and in steppes. He climbed high into mountains, sailed on rivers, lakes and seas. He made trips to Kamchatka, Lake Baikal and the Komandorskiye Islands. Between these long journeys, he walked through the woods near Moscow, the city parks, visited zoos and menageries, botanical gardens, hot-houses and nature preserves. And each time his viewfinder caught something that made even knowledgeable people wonder: "Where did he find that? I have been there but I never saw anything of the kind."

Today the name of the outstanding photographer Nikolai Nemnonov is known to all nature-lovers. Thousands of his works have been published in books, albums, journals and newspapers. Among them are landscapes, pictures of flowers, animals, birds, fish, insects and domestic animals.

The distinguishing features of his work are goodness and beauty, love for his country, and, consequently, for its people.

A genuine artist, he gave us more than aesthetical pleasure. He helped to shape in millions of readers a special attitude to the earth's riches which is known today as ecological awareness. Nemnonov's photo-sketches are often more informative than long scholarly articles. His pictures and images of live nature, which is inaccessible to most people in their everyday life, are beautiful and impressive, and also, most importantly, they make people aware of the need of preserving these riches of nature for the coming generations.

I became acquainted with Nikolai Nemnonov when he was at the peak of his creative career and enjoyed tremendous popularity. He was then sixty. I met him in an editorial office of a magazine where he had brought a colour photograph of caged sables. It was a splendid photograph. I did not recognize him although I had seen his picture in a magazine. For some reason I imagined him as being tall and powerfully built but here was a small lean old man with a bushy beard and remarkable, childishly surprised eyes. His movements were brisk, his conversation assertive and even sharp but his keen eyes emanated such warmth and kindness that you immediately

felt as though you had known him for many years. I was then a novice at nature photography, and Nemnonov offered to take me to a fur-animal farm near Moscow. After that we met often for long chats. Several times we went on photographing missions together. These meetings taught me a lot and gave me an understanding both of him as a person and of the work to which he dedicated over a third of his life.

By his example he demonstrates that only an active man, a passionate hunter at heart, a good tracker, a well-trained athlete and a dedicated artist can hope for success in nature photography. Nature would never reveal its secrets to an indifferent, lazy and, still less, a cruel man. Also, it is no good trying to skim the surface — no really valuable material will ever come your way by a fluke.

One day we set out towards our "location" along the bank of a snow-bound river. It was very cold and delicate spiky hoar-frost adorned the tree-branches.

"Look, isn't it beautiful?" I said. "Let's take a few snaps."

"Yes, it's beautiful," Nikolai Nikolayevich agreed. "We might get a good picture or two. But we haven't much time."

"Do we need a lot?" I asked.

"At least two hours. We'll have to wander around, look for the best angles and so on. The valley is quite long, don't you see. It won't be easy to select the right spot. Landscapes take more work sometimes than the fastest of animals."

Later I saw him photographing a sable in a pen. He moved only when necessary. He was carrying two cameras with telescopic lenses (one with a black-and-white and the other with a colour film). He was totally absorbed. He moved slowly along the netting. Then he froze and took several shots. He squatted, peered — no, that wouldn't do — rose, moved, then took a series of shots again. He never spared the film.

The main thing Nemnonov was after was expressiveness. He paid great heed to composition. His works were always laconic and authentic. He was an experienced pathfinder, and at home in wild nature. Despite his lively temperament he was able to sit for hours in a covert waiting for an animal or a bird.

He had set himself the mammoth task of photographing all the different species of the country's animal world. And he very nearly succeeded. His vast phototeque contains tens of thousands of negatives.

But he also photographed everywhere he found an animal or plant of interest to him, not necessarily in wild nature. Moreover, he made numerous photographs of the same species in different conditions — in winter and summer, in the mountains, the steppe or in the city.

He was a fierce opponent of poaching and a campaigner against all cruelty to nature. Once in Siberia a young worker took him into the forest adjoining a large construction site. The young man was eager to please the old photographer. When he saw a jay alight on a tree nearby, he took his gun off his shoulder and offered it to Nemnonov: "Here, take a shot at it!" "No, I won't," replied Nemnonov, "and I won't let you kill it either. It must be the last jay near your settlement. You've killed off the rest of them."

I am sure the young man remembered that rebuke for senseless killings for a long time.

Nemnonov used to send his work to photography exhibitions within the country and abroad. He spoke for a rational utilisation of the earth's riches, and often supported in the press people who campaigned for nature protection. And he never minded sharing his experience with beginners.

At his last exhibition in his lifetime, held in Moscow, I read the visitors' book. There were many heartfelt words of gratitude to this lover of Russian nature. Experienced elderly people expressed their amazement at the beauty of nature they had missed until Nemnonov's photographs literally opened their eyes to the world.

An article about Nemnonov was published at the time in the newspaper *Komsomolskaya Pravda*. Its author was Vassily Peskov. Much in that article was news to me. I rang up Nikolai Nikolayevich after reading the article to express my admiration of his selfless work. Nemnonov was an extremely modest person. All he said in reply was, "Oh, come on, enough of that."

That was my last conversation with Nikolai Nikolayevich Nemnonov. Several days later (on May 28, 1972) he died in a remote corner of Ivanovo Region on his way back from a trip to photograph mating wood-grouse.

His work is being continued by his son Nikolai, a biologist and a talented photographer as well. His grandson, also Nikolai, dreams of following in his grandfather's footsteps, too. In other words, wonderful photographs bearing the signature N. Nemnonov will bring joy to nature-lovers for many years to come.

From the Taiga to the Steppe

The ABC of the "White Book"

Hunters, the first trackers, put the greatest value on the first layer of fresh snow. You see, although it covers up old tracks, the new ones then stand out very clearly. Fresh snow may supply different information. If the snowfall stopped before evening, the snow preserves all the signs of animals' nocturnal life. If the snowfall lasted till daybreak, only part of the nocturnal life is recorded in it. And it sometimes happens that a heavy snowfall obliterates all but the most recent tracks. A beginner should start by learning about animal tracks on fresh snow for it is easier to decipher fresh tracks in this "white book". The famous tracker Dersu Uzala, the guide of the Russian traveller and explorer Vladimir Arsenyev, used to say: "You have eyes, but you can't look see." A person may look at a white path in a wood and see nothing but snow and frost-bound trees. But to another this path will reveal many of nature's mysteries. He will be able to tell for sure which animal left the tracks, how long ago, in which direction it went, and a lot else.

Several hunters were my teachers in reading the "white book". They all agreed that one must begin with tracks of domestic animals. Then in the future you won't confuse a deer's tracks with a cow's or a wolf's with a dog's and so on.

This science can be mastered independently as well. Just watch domestic animals as they walk about, study the shape of their tracks, the dependence of the trail on speed and other circumstances. It is much more difficult with wild animals. Here you need an experienced instructor. Again, you must begin with the tracks of the most common animals and birds in this locality. The first thing you must learn is to distinguish in which direction the animal was moving. A hare's trail, for instance, is not at all clear in this respect. Then try and unravel the loops and guess whether the animal was walking, trotting or galloping.

There are many squirrels' tracks in the woods around Moscow. Their trails are divided into "feeding trails"— on the way to their feeding ground, and "nest trails"— those leading "home". An animal's tracks tell a lot about its habits. One can tell the tree on which the squirrel fed by the fir-cone scales underneath; it is clear when the animal was trotting, unafraid, and when it was fleeing from danger. By following a sated squirrel's trail you can find its nest.

Then there are the tracks of the squirrel's deadly enemy, the marten. Sometimes it jumps from one tree-crown to another, and sometimes it leaves tracks in the snow. If you see a characteristic hole underneath a tree with a squirrel's nest and drops of blood in the snow, it means a marten has attacked a sleeping squirrel at night. They fell out of the nest together and this forest tragedy ended here, under the firtree.

Wild boar tracks are quite common in our woods. This shaggy tusked beast ploughs through the deep snow like a tank. Its tracks can also be found in potato fields near human habitation. A single trail means that an old male has passed by, a group trail will show you the way a herd has gone. Animal tracks can tell a lot to an observant person.

Tracking is not only an interesting but a very useful occupation. It supplies information about the life of animals and about their numbers. Such people as nature-lovers, foresters, geologists, frontier guards, hikers, animal photographers and film-makers cannot get by without a knowledge of tracking.

Go into the woods and fields often, be patient and persistent in studying animal tracks, and gradually you too will learn to read the "white book".

Brown and White Hares

We know of these animals since childhood — from fairy tales, picture books and animated cartoons. We know that hares are cowardly, we know they are great boasts — indeed, we seem to know all there is to know about them. Yet when we grow up we cannot even recognise a hare's tracks. And only one person in a thousand will distinguish the tracks of a brown hare from those of a white one.

I remember an old hunter teaching me this skill.

"Whose tracks are these?" he would ask, pointing to some tracks in the snow.

"A hare's!"

"What kind of hare?"

"White, I think," I would make an inspired guess.

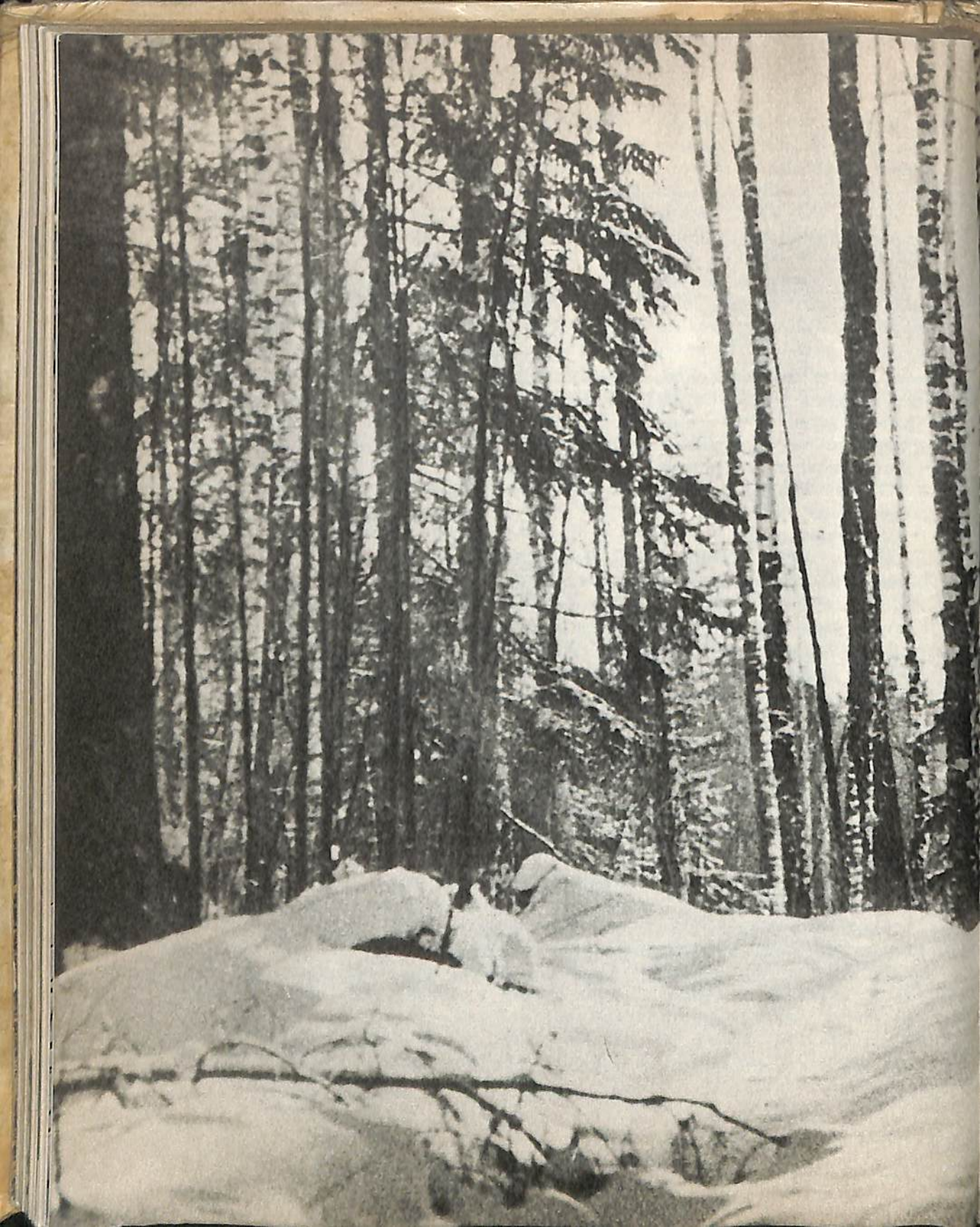
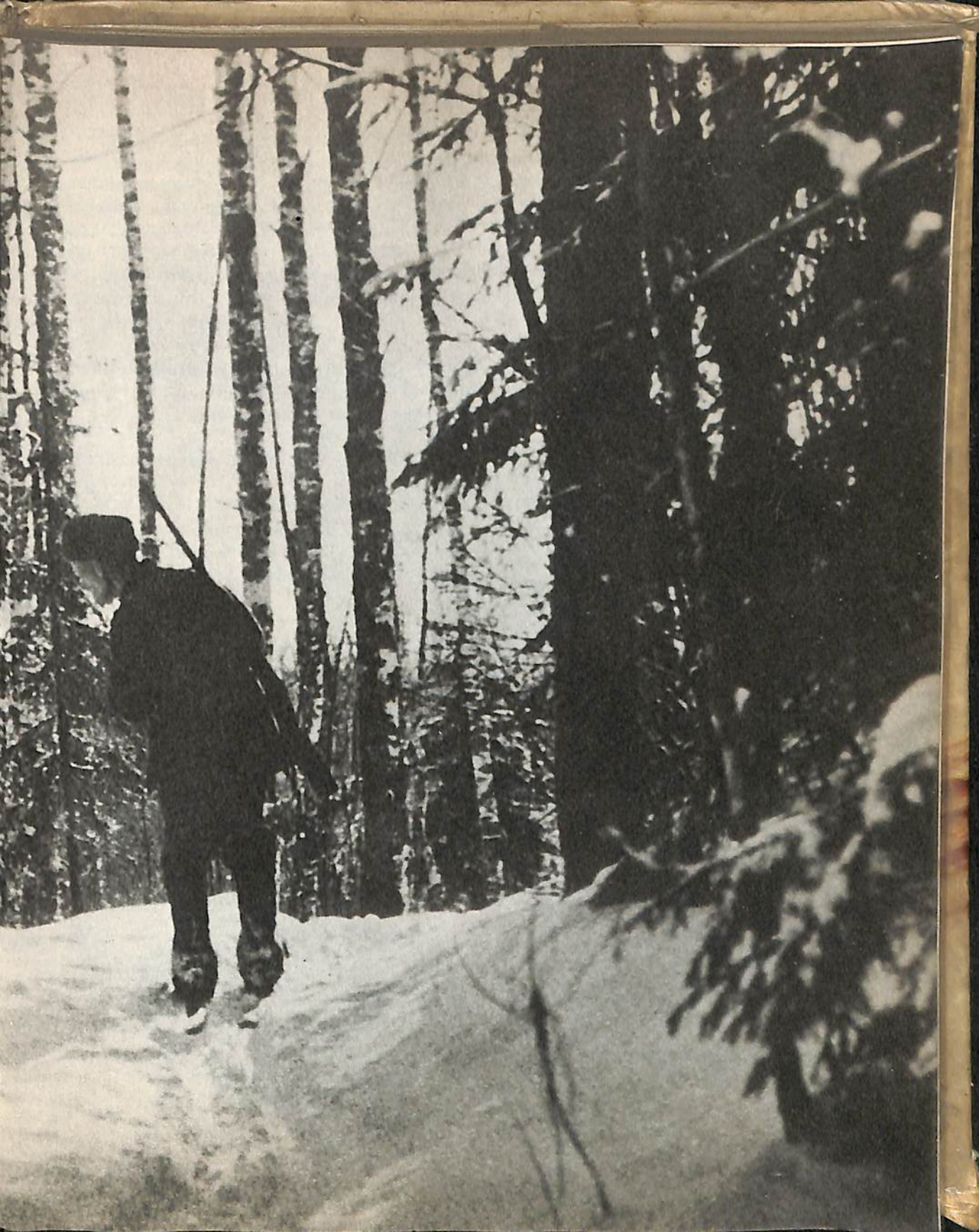
"Now why do you say that?" the old man would exclaim heatedly.

He would start asking me questions and giving immediate answers:

"Where does the white hare live? In the woods. What kind of snow do we have there? Deep and loose. Can an animal with a paw like this," he nodded at the tracks, "run over that kind of snow? It would get bogged down at once. And the fox would make a dinner of it. Now a white hare has a broad back paw like a flipper. This one, you see, has a narrow paw. And where did he leave the trail — along the wood-edge, near a field. And there, of course, you have a wind and the snow has a hard crust. This kind of long narrow track belongs to the brown hare. And he has a longer leap. A white hare's paws are rounder and broader. That means he cannot run so fast. D'you know what kind of speed a brown hare can work up in the open? If you put a speedometer on him he'll clock 50 kilometres an hour. And how can you tell the two hares apart in summer?"

"The brown one is bigger," I ventured an answer. "He weighs more than five kilos. A white hare is smaller."

"That's true enough, but there is another, more reliable sign. You need to look at its tail. The brown hare's tail is narrow and long. And a black stripe runs down the middle of it — you can see it in any season. The white hare hasn't got this stripe."

A hunter must be able to read the "white book"

Later I learnt that these two animals, though they have much in common, also differ considerably in their habits. Experienced trackers know these differences. Hares are active at night. A fresh sheet of snow will tell you about the hares' nocturnal romps. The white hare leaves endless loops in the wood. The brown hare makes neat stitching in the open field. If you can read the "white book", you will learn a lot about hares, for instance, what they feed on. The white hare gnaws young twigs and the bark of aspens and birch-trees in winter. This food is not very nourishing, so the white hare is not fat in winter.

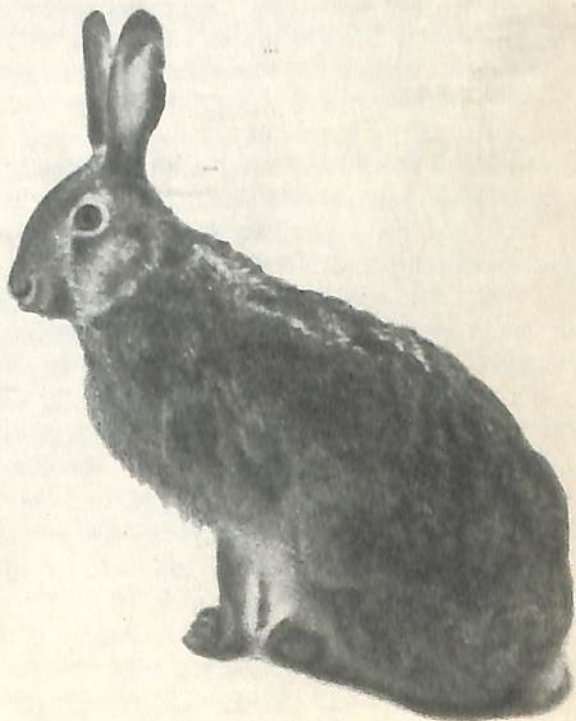
The hares' mortal enemy, the fox

But brown hares browze in fields of winter wheat and rye. They dig in the snow until they reach the young shoots and have a feast. They also wander into snow-covered vegetable gardens in search of cabbage stalks left from autumn. If they get into an orchard they can do a lot of harm to the trees and berry bushes. They also frequent hay stacks. For this reason the brown hare is in better form in winter than the white one.

In summer both hares are greyish-brown. The brown hare becomes a little lighter towards winter, while the white one changes his coat to white. Constant danger has taught both hares to cover up their tracks in a masterly fashion. Most other animals do not have this propensity. But hares are past masters at it. A hare will run back and forth along its trail twice or even three times and then make a wild leap aside at a right angle. Before lying down for the day, a hare does this trick several times. A fox following the trail gets confused. It is sure a hare has been running about here for there is a smell of hare all around. While the fox scurries back and forth uncovering the tracks, the hare, if it's hiding not far off, behind some hillock, will leap up and make a getaway.

In the wood the white hare largely relies on his sense of hearing. To escape from pursuit, he is more apt to lie perfectly still. When closely pursued, hares run in circles. The white hare makes smaller circles than the brown hare. The brown hare often stops in his tracks and looks back, trying to catch sight of his enemy. The hares' habit

A baby white hare

A brown hare

of running in circles is used in hunting them with hounds. The hunter can tell by the baying which way the chase is going and can then intercept the hare.

The hare has innumerable enemies — the fox, the eagle-owl, the hawk, lynx, wolf and many others. Each of these "hare hunters" has his own way of tracking down its prey. The lynx jumps on it from a tree, the fox steals up to a lying hare. And the winged predators attack from above.

I once actually saw a goshawk attacking a white hare. A person does not often get the chance of seeing such a spectacle. The group of biologists with whom I was out on that frosty morning was extremely lucky. The hare ran out of the wood to feed on the edge of a big field. Here the hawk spotted it and swooped down. The first attack left the hare disoriented. Instead of running for the wood, which promised shelter and salvation, it headed for the open field and sure death. The hawk soared up and swooped down again and again. Some two hundred metres separated us from the scene. The hawk's powerful wings raised a cloud of swirling snow, and we could not see what was happening there. We all rushed towards them. This saved the hare's life. The hawk left it and flew towards the wood. The hare made off in the same direction. It looked just as if it were pursuing the predator.

Hares breed prolifically. A doe-hare has 3 or 4 litters a year, with from 3 to 10 young in each. The first litter is usually born in March, the last in September.

Even so the number of hares in Central Russia has decreased in recent years. The principal reasons for this are the use of pesticides in agriculture and poaching. Combine harvesters are also very dangerous for young hares — many leverets are killed by their blades at harvest time. This could be avoided if measures were taken to frighten them away before the harvesting was started.

Very often children, and grown-ups too, "rescue" baby-hares, which have been "abandoned" in the woods. As a rule, these animals die in homes. It is very important to explain to children that mother hares always return to their offspring. Rescuing them is tantamount to poaching.

One gets most pleasure from watching wild animals in their natural habitat. For instance, following a hare's trail is a great art which affords tremendous enjoyment. One may think that there is nothing particularly difficult about it — all you do is read a book, memorize the shape of the tracks, and everything becomes as clear as day. In actual fact, it is not that simple. I have never once succeeded in getting near enough to a white hare to take a good photograph. A hunter friend of mine once led me to a white hare in a forest near Yaroslavl. I shall never know how he managed to find his way in that tangle of old and new tracks. We walked slowly and cautiously through a thicket of firs, then a clearing, across a ravine, and through a thicket of young firs again. All around were trails and double and treble trails — enough to make you dizzy. Then he raised his arm. We froze. He pointed to a gap between two trees. I held my camera at the ready.

"Tally-ho!" he cried.

No more than eight steps from me the snow spurted in a fountain, and a white ball with black ear tips rolled out among the firs... A living miracle of our woods.

The Elk

It is a very impressive-looking animal. Although it belongs to the deer tribe, it is very different from all other deer. Large, long-legged, with a heavy head, big lips, a humped whithers, it looks as if it has been crudely hewn from some ancient model. The elk strikes fear at first sight — a huge monster, rather like a mastodon. The largest males are two metres high and nearly three metres long. They weigh up to 700 kilograms. As is to be expected, such an animal is tremendously strong. This is most likely why so many tales have been invented about it. There is even a hunters' saying: "If you go for the bear, make your bed, if you go for the elk, make your coffin." In actual fact, the elk is quite harmless. Even when wounded it thinks only of escaping, and hunting elks is no more dangerous than hunting hares.

Until quite recently we knew disconcertingly little about this forest giant. Today we know quite a lot, but much less than we would like to know. Almost entirely exterminated at the beginning of this century, elks are now quite common in our forests. And the popular interest in the animal is increasing all the time.

There are three sub-species of the elk living in the Soviet Union — the European elk, the East-Siberian (or Yakutian) elk and the Ussuri elk. Elks inhabit nearly all kinds of forests. They are also to be found in the wooded tundra, and in recent decades, have begun to penetrate even the steppe in the south where they mostly keep to the protective forest belts.

The elk feeds primarily on the young shoots of trees and bushes but it eats grasses as well — nettles, willow-herb, and meadow-sweet. It is very partial to tree-bark, especially the bark of willows, aspens, pines and rowan-trees. It does not like firs. Of all mushrooms its favourite delicacy is the death-cup.

Not many people know that elks like water plants such as buckbeans and water lilies. Quite often, they feed in the shallows with their heads, ears and all, under water. In lakes and river pools rich in underwater plant life, they will dive to a depth of 2 to 3 metres to reach a tasty weed. An adult animal consumes, depending on the season, from 10 to 35 kilos of feed a day, which adds up to some 7-8 tons a year. More than half of this consists of tree shoots. It is easy to imagine what havoc elks would cause in forests if they grazed in big herds. However, they roam alone or in very small groups, moving from one tree to the next, or from one bush to another and they eat only a small number of twigs on each. In summer elks move around a lot; in winter, especially when there is a lot of snow, they keep to a small area which is rich in food.

In search of new pastures elks may travel as many as several hundred kilometres. Overpopulation is another cause of these migrations. In such cases, they may never return.

The elk population of the USSR is assessed at about 700,000. This number is quite considerable and has given rise to serious problems.

Elks have proved to be a threat to newly planted woods, and so young plantations need to be protected from them. But so far no way out has been found.

Elks have started entering big cities. This is highly dangerous for them. They are killed on highways and cause serious accidents.

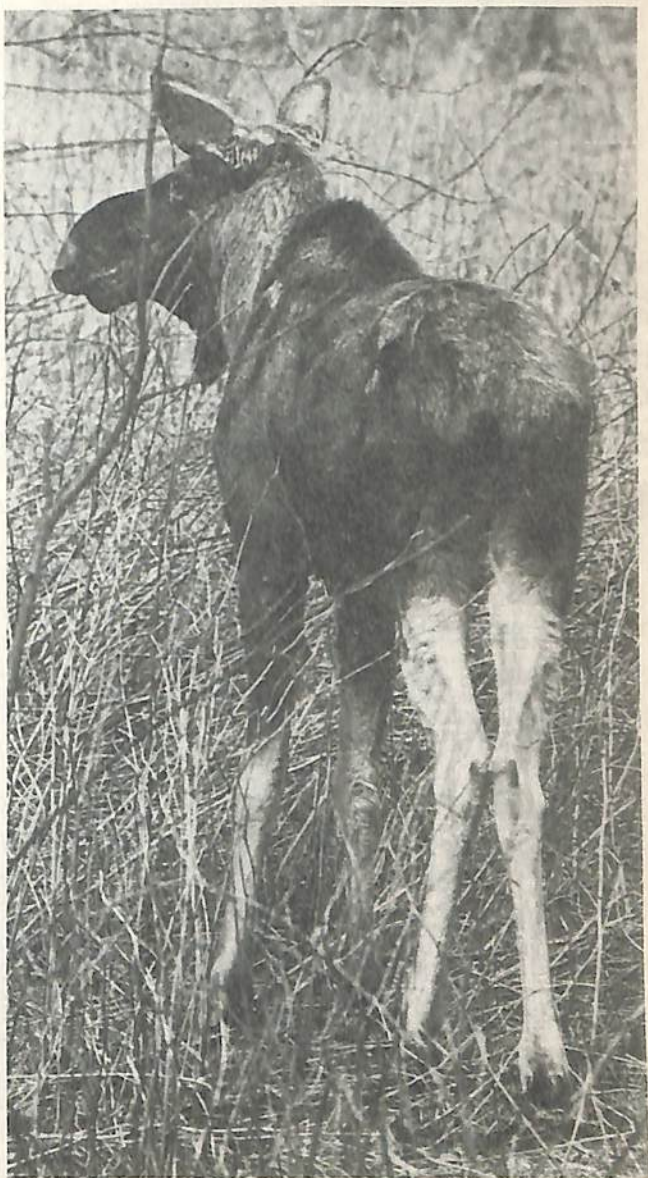
Elks like water. They are excellent swimmers and can swim long distances. But when walking over thin ice, they sometimes fall through and drown.

Hunting elks in the vast stretches of Siberian forests is made unfeasible by the absence of roads. So many animals die off there from diseases and predatory beasts.

An elk with young soft horns in summer

Many elks, especially young or weak animals, fall victim to wolves, bears, lynxes and wolverines. However, an adult animal is able to take very good care of itself. One blow of its hoof can smash the skull of a bear.

Professor Manteufel once wrote about an elk that was killed in Siberia, which had a strange growth on its foreleg. This proved to be a wolverine which it had pierced through with its hoof. Its corpse had become rigid and the elk could not get rid of it.

This elk is only beginning to grow its antlers. The photograph was made in April in Belovezhskaya Puscha preserve

Adult males present a danger to people only in August and September, during the breeding season when they are quite aggressive. They are better given a wide berth, or, if a meeting is unavoidable, they can be frightened away by a loud shout, a clanging of metal or by banging stick against a tree.

It is not safe to get nearer than 15 to 20 metres to an elk. If you come too near, it may take fright and attack, especially if it is a cow with a calf.

Calves are born at the end of April or in May. There may be one or two. For the first week after birth they stay in one spot and are only protected against predators by their skill for lying low. Eight- or ten-day-old calves already follow their mother and even nibble at leaves on bushes.

The elk's life expectancy is 20-25 years. In wild nature, however, few animals live this long.

Man has always hunted elks and used their meat, hide and antlers. Only males have antlers, and they shed them every year. They begin to grow in April and May. At first they are soft and filled with blood. Towards the breeding season they become hard bone. In August and September, during the mating tournaments, these antlers are formidable weapons. In December-January they shed them. As distinct from most other deer, elks' antlers are heavy and shaped like a spade. They may have as many as eighteen points.

People have long wondered how to put the elk's valuable qualities to good use. The best way, of course, is domestication. Many attempts have been made. In the Middle Ages elks were harnessed to sleds in Sweden and used to carry mail. Tame elks were even used as saddled mounts. But that was as far as it went.

In the Soviet Union the matter was put on a scientific basis in the '30s. Today there are two elk farms carrying on this work — in the north, in the Pechora-Ilych preserve and in Central Russia, in the village of Sumarokovo, Kostroma Region.

Biologists are studying the elk's physiology, the composition of its blood and milk. The task is to breed animals suitable for farm conditions. Quite a lot has already been done. They have learned to tame elks, and proved that better use could be made of the elks' antlers and milk. Elk milk has a very high fat content — up to 10 per cent. In a year one cow gives up to 500 kilos of milk. It has medicinal properties, too, helping particularly in the treatment of gastric ulcers.

Of course, this work is, so far, in the experimental stage. But the results are quite promising. The information about elks obtained at these farms will certainly come in useful for protecting and controlling their numbers in nature.

From the White Sea Southwards

The flat rocks on the islands of the River Vyg near the town of Byelomorsk in the north of European Russia are well-known to world science. The primitive people who lived and hunted here in the remote past have left paintings, petroglyphs, on these rocks, which their distant descendants now come to see from far and wide. Today these islands are a kind of open-air museum. The rock paintings,

Satan's tracks, as the local people call them, date from the Neolithic Age — the 3rd and 2nd millennia B. C. They portray an elk-hunting scene, the killing of a white whale, animal tracks.

A guide from the Byelomorsk Petroglyphs Museum told us how the "tracks" were discovered, and explained the meaning of the paintings. A particularly interesting one showed hunters overtaking the person who had stolen the seal they had killed, and punishing him.

One of the visitors expressed his doubts as to the age of the rock paintings: "Five thousand years? It can't be. The 'tracks' would have long crumbled to sand. It must've been some joker who chiseled them out quite recently."

My companion squatted by a rock, carefully touched the surface of the petroglyph with his palm and said:

"I believe they are real. And not only because top scientists have confirmed this. Simply it appeals to me, this picture of our ancestor, at the dawn of mankind, squatting before this rock and carving these drawings out with a rock chisel. Creating all this beauty! I can clearly picture him doing it, the ancient artist clad in a skin, his eyes ablaze with creative inspiration."

"Are you a poet?" the one who had doubts asked with a smile.

"Why not?" my companion said. "He was also a poet," he pointed at the "tracks". "How can one help being a poet here?" he asked all of us. "Look at this White Sea countryside. It's full of miracles — but miracles worked by human hands and not wizards."

Our next trip was to the Solovetsky Isles.

A big seagull soared over our launch. And directly ahead fortress walls seemed to loom out of the leaden sea waves. These were the Solovetsky Isles, the famous archipelago in the White Sea. It consists of six islands with a territory of about 300 square kilometres. We were heading for the biggest of them, Solovetsky Island.

Russian people have toiled here, near the Arctic Circle, over the centuries to transform the severe northern nature. The Isles are an example of how man can enrich his land, increase its fertility and adapt it to his needs.

Today the island is a large preserve. It includes unique old time structures, a wild nature preserve with rich flora and fauna, nearly 500 fresh-water lakes (some joined together by artificial canals), a botanical gardens, fish-breeding ponds and vegetable plots.

Most of Solovetsky Island is covered by forest of the majestic northern fir-trees and pines. There are fish in the lakes — pike, burbot, perch, roach and ruff. In the sea there is White Sea herring, plaice, cod as well as many other valuable species.

It was here, to the Solovetsky Isles, that the first group of musk-rats was brought for acclimatisation in the local lakes. This animal had never existed in Russia. Today the musk-rat has spread all over the Soviet Union and become one of the principal fur animals.

The musk-rat's home country is North America. The Red Indians called it the beaver's younger brother. They considered the beaver to be a very wise animal, and

his younger brother to be rather stupid. In actual fact, these animals are not related at all. The beaver is related to squirrels, while the musk-rat belongs to the mouse species. Its name is derived from the strong-smelling secretions of the males' glands.

Nevertheless, it was not without reason that the Red Indians regarded the two ani-

The musk-rat, a newcomer from the American continent, has spread over many regions in the Soviet Union

mals as brothers. Their habits *are* extremely alike. Both animals build their houses on water. Both are excellent swimmers and divers. They are even similar in appearance, but differ greatly in size. The average beaver weighs 20 kilos, while the musk-rat rarely exceeds one.

It is really hard to tell how their intelligence compares. What is certain is that the musk-rat has proved itself much more adaptable and "practical-minded". While the

beaver has fought against heavy odds for survival as a species, the musk-rat has conquered one country after another.

The musk-rat was first brought to Europe only at the turn of the 20th century. In the Soviet Union its acclimatisation began in 1928. The first small group bought in Canada were given the Solovetsky Isles as their new domicile. After they multiplied here, they were resettled in many other regions of the Soviet Union.

To tell the truth, zoologists had many doubts about the success of the venture: about the new settlers finding enough food, surviving the harsh winters, holding their own against local predators. But the musk-rat passed all these tests with flying colours.

Within a comparatively short time it has settled over vast territories and is thriving everywhere. It was helped by its great vitality, simple tastes and capacity to adapt. It thrives both in the freezing north as in the hot south. It now lives in most other European countries also.

The musk-rat prefers water reservoirs with abundant water weeds and marsh plants. It makes its home in ponds, lakes, rivers, ditches and swamps. It can even live in sea estuaries where the water is not too salty.

The musk-rat is a good swimmer. Its compact body, up to 30 centimetres in length, speeds through the water like a small torpedo. Its 20 centimetres long tail, flat and covered with scales, is used as rudder. Its hind legs are longer than its forelegs. Its toes are joined by short webs. It can stay underwater for several minutes. It is rather clumsy on dry land and cannot run for long.

Musk-rat settlements are easy to detect by their characteristic dwellings. They dig burrows in tall banks with firm soil 2 to 10 metres long. On swampty reservoirs with low banks they build houses of dry grass, moss and sedge. The houses usually stand by the water's edge on the bank, on an island or a hummock. The entrance to both types of dwelling, as with beavers, is under the water's surface. The temperature in the nest, whatever the frost outside, never drops below zero. Usually it is about $+10°$ C. The houses are conical in shape, about a metre in height and a metre wide at the foundation. Inside there are several chambers. One of them serves as the storehouse in winter.

The things you find in these "pantries"! Roots of water plants, bulrushes, reeds, mare's tails. There is also protein food such as bivalve molluscs, crayfish, frogs, small fish. Every "product" is neatly stacked away from others. Sometimes musk-rats set up special canteen-huts not far from their house; then the stores are kept there. Musk-rats do not hibernate. In winter they go out to swim or just to stretch their limbs on the ice.

In spring musk-rats usually feed on young leaves and shoots. In summer and autumn they change to a diet consisting of the base of plant stems, roots and seeds. In the warm season musk-rats eat in special places at feeding tables. In a word, they are very neat and tidy animals.

They multiply quickly. Both parents take care of the young. No strangers are allowed in their territory. During the summer and winter they all live together as one big family. In spring these families split up. In preparation for the mating season the young are ruthlessly driven out from their parents' territory. If the musk-rat population in the

district is dense, the neighbours drive the homeless young musk-rats farther and farther away.

In this way musk-rats spread out, occupying free territories, often many kilometres away from the parental home. It was due to this feature of theirs that seven years after the first group was released on the Solovetsky Isles, the hunting of musk-rats was legalized. True, in 1935 only 4,000 musquash pelts were procured. But in the course of the next 40 years the state obtained over a hundred million, and the musk-rat became one of the main fur animals in the country.

Coats and other articles of musquash fur are in steady demand. Besides, musquash is easily dyed to resemble such precious furs as fur-seal, sable and mink. The natural colour is pleasant, too, ranging from dark-brown to russet with golden streaks. The back is usually dark, and the belly much lighter, the colour of ochre. Young animals have dark-grey coats and only begin to turn brown in the second month of their life.

The under-fur is light blue, overlaid with long glistening stiff hairs of various shades of brown. The fur is very dense — up to 17,000 hairs per square centimetre.

The musk-rat moults once a year. But, as with all aquatic animals, the moulting season lasts long and is barely noticeable. Practically, it continues from May to the following March. The best fur is obtained in early spring. The young moult twice during their first year. In summer their fur is a bit thinner than in the cold season. Its warmth keeping capacity is lowered to 12 per cent.

The hunting season begins in November. Guns, traps, and nets are used.

The musk-rat has many enemies: birds of prey, foxes, minks, polecats, stray dogs. Young musk-rats often fall victim to large pikes. Recently another powerful enemy has begun to harass the musk-rat population — the wild boar. A herd of boars is capable of destroying a whole village of musk-rats within a short time. The boars break up the houses and eat the musk-rats' stores, and their owners as well if they don't get out of the way.

In recent years the numbers of musquash pelts obtained have decreased considerably. There are many reasons for this, particularly, the contraction of musk-rats' territories due to the draining of marshes, construction of hydro-power electric stations, and poaching.

Of course the musk-rat is not an entirely harmless animal. Hunting experts, for instance, are alarmed by the competition it offers to the desman, a rare animal. This must be prevented by all means.

Musk-rats also present a danger to hydro-structures, undermining dams. In some parts of the United States, for instance, the musk-rat is ruthlessly exterminated for this very reason. Incidentally, it is also called there "water-rabbit" for its tasty flesh which is highly valued in America. So, the destroyers of dams end up on a skewer.

Hydro-technicians do not regard the musk-rat threat as being very great. Putting up an underwater fence should dispose of it altogether.

The problem of increasing the population of this valuable fur-bearing animal is much more urgent. The state needs a steady supply of pelts every year. To this end

the territory inhabited by the musk-rat should be expanded, its protection increased and musk-rat breeding enterprises multiplied and perfected.

There is yet another way — musk-rat farms. Attempts to breed musk-rats in captivity were made as early as the 'twenties and 'thirties. But they were not successful. Moreover, they did not pay: the profit from the pelts was much less than the cost of the structures required and the animals' upkeep.

At present research institutes of the Kazakh SSR are developing the technology of breeding musk-rats in cages and studying their behaviour in captivity.

I have often had occasion to observe wild musk-rats during their most active periods at sunset and dawn. One is immediately struck by the animals' energy, industry and perseverance. Watching them, one begins to understand why this animal is so tough and capable of settling vast territories.

When musk-rats are captured for re-settlement, they are usually aggressive and hard to manage. I remember a catcher dropping a musk-rat. Do you think the animal fled, given this opportunity? Certainly not. It attacked the offending "giant" so fiercely that the "giant" turned heel.

Another time we set free a musk-rat, which had been kept in a cage for several days, hoping to photograph it by a growth of bulrushes. We had thought we would have just a few seconds before the animal disappeared from view. But we were in for a surprise. The musk-rat waddled sedately to the water's edge, stopped and began to wash its face like a cat, licking and smoothing out its coat. We walked around, snapped our cameras, but the animal did not seem to be aware of us. So about half an hour passed. We ran out of film, but the musk-rat was still preoccupied with its toilet.

Finally one of the photographers ran out of patience. He approached the musk-rat and sprinkled it with water. The rat gave an angry grunt and reluctantly made for the growth of bulrushes.

The aggressive nature of musk-rats, which is also directed against their own kind, creates difficulties for keeping them in group cages. At the same time it has been established that musk-rats are excellent parents and that the male takes an active part in rearing the young.

Methods of musk-rat cage-breeding are only being evolved. But the experience accumulated to date promises that industrial musk-rat farming is not far off. Perhaps such farms will also appear in Byelomorye, this animal's first home in Russia.

I peered at the banks of Solovetsky Lakes, seeking out signs of musk-rat habitation. I had been assured by biologists that there were a lot of them in the locality. But I wanted to see a few with my own eyes. The salty wind was carrying iodinescented air from the White Sea. Sea cabbage was being dried on the shore.

"I wonder if musk-rats eat sea cabbage," I thought. "The plant contains almost every single element from Mendeleyev's Table. A very healthful food, this sea cabbage..."

Suddenly I saw the familiar triangle in the water, followed by a ripply trail — a musk-rat. Many years ago its ancestors began their march over Russia here by the White Sea.

Black-Cocks' Songs

On April nights, when water is dripping musically on Moscow's streets, I am often awakened before dawn by strange gurgling sounds. And, through receding sleep, I recall that distant spring which brought me for the first time to a mating site of black-cocks.

It was near Smolensk. The three of us, all hunters, rose long before the first cock-crow. We left the small woodland village when it was still dark. Below we could hear the splashing of the river; now and then came the soughing of a fresh breeze, the road under our feet squelched with mud.

We strained our ears, but all we could hear were ordinary sounds of no particular interest to us. But then a new one broke out. It was intermittent and reminded a feeble kind of gurgling, now getting louder, now vanishing.

"Hear that?" whispered one of my companions. "They're singing!"

"Surely they're pigeons," I thought. "They coo like this."

But as we approached the mating site, the cries of the black-cocks increased in volume and blended into inimitable, vivid music. Close by, the sound was quite different from what it had seemed from afar: it was powerful, alluring and exciting. It still resembled pigeons' cooing, but not so much as before. From the place where we first heard the black-cocks we had to walk another two kilometres.

We got the direction right and soon found them. The sky had lightened, and on a field covered with last year's stubble we could clearly see some dozen and a half bluish-black birds with white underfeathers on their tails.

The cocks were hopping about the field excitedly, starting duels, and sometimes flying from one spot to another. And all the time they went on singing with great abandon. There were three distinct types of sounds: gurgling, muted hissing and snorting, and the flapping of wings, which made one think of dry twigs snapping. The black-cocks were carried away by their mating play to the exclusion of everything else. They did not seem to see, hear or feel anything except the surging of their blood. But this was an illusion. As soon as we started moving stealthily along the forest edge towards them, somebody seemed to give them the sound of alarm. One bird after another flew up, and they headed for the forest in a dotted line.

We built light shelters close to the mating site, some hundred metres apart, and settled down there to watch at three in the morning.

Since then I have seen many black-cock mating games. It is difficult to convey the excitement that grips you as you watch the magnificent birds. Your heart seems about to burst when you hear, quite close, in the complete darkness, the voice of the first black-cock to alight on the site. Usually he is the oldest and the most experienced. After a short silence he snorts a couple of times, and then falls silent again. You must keep perfectly still. The cock listens intently, turning his keen-eared head right and left. A tiny rustle and you won't see him and his rivals again that day. He emits a short muttering sound. Then another. And then he launches into his act properly, going

through his paces with great vigour and spirit. You peer in the direction where the sounds are coming from. Where is he, the singer? And all around you can hear the noisy flapping of wings as the heavy birds flop down from the darkness. More and more black-cocks arrive with every minute. They start singing some ten steps away from your shelter.

Day breaks. Now you can see the birds clearly. Their necks outstretched and their tails spread out like lyres they mince about, their crops nearly touching the ground. Then one of them suddenly raises himself, thrusts out his breast proudly, throws his head back, very like a domestic cockerel, opens his beak and emits a hoarse "choof-foo".

People learn to imitate this sound quite easily. But the gurgling is a different proposition — few manage to fool a black-cock with their imitation. By choof-fooing, you may lure a cock almost to the wall of your shelter. Provoked by the invisible rival, the black-cock will all but throw himself under your feet — and then you get a chance to have a good look at him and to photograph him at close range.

By seven or eight in the morning the mating game reaches its height. The objects of all this wooing — grey hens — arrive while it is still dark and land some way off. At first they announce their presence by sporadic clucking, which sends the cocks into a veritable frenzy of excitement.

When it gets light, the hens move closer to the edge of the "dancing floor" and saunter about among the demented cocks with an indifferent and independent air pecking at something on the ground now and then. It is at this point that pairing occurs. The hens seem to be selecting a worthy partner, examining their finery and watching their dashing performance. The hens are also alert guards. They are keen-eared and wary. They are often the first to give the alarm.

The hens are much smaller than the cocks, which may weigh up to two kilos. Arrayed in his nuptial plumage, tail spread out and feathers ruffled, the cock looks like an overdressed giant beside the unassuming little hen.

By ten in the morning the pitch of the game begins to ebb. The noise subsides, and the birds begin looking for food and gradually leave the mating ground. By evening the cocks will gather for another session, but it will be short and half-hearted. The black-cock mating season lasts from April to June. But you may hear the black-cock's mating song even in autumn, although it has then lost its initial meaning.

After the last egg has been laid — it may be the fifth or the eighth — the hens settle down to brood. This usually happens in early May, but may be as late as early July. Some 21-25 days later the chicks are hatched, and the mother takes them away to the thickest part of the forest. The chicks grow slowly, and a third or even half of their number fall victim to predatory beasts and birds, die of bad weather and other unfavourable factors.

They say that at one time as many as a hundred black-cocks used to gather for mating games. Today a mating ground with a dozen birds is a rare find.

The black-cock has always been hunted by man — with a gun or snares. Today

the black-cock population has diminished noticeably, mainly because man has ousted the birds from their traditional places of habitation. And in densely populated areas they are not found at all.

Today black-cock hunting is greatly restricted. Particular care is now taken to protect the mating grounds in order that the black-cocks may continue to thrive and future generations may hear their exciting songs in the fields and wood-glades on April mornings.

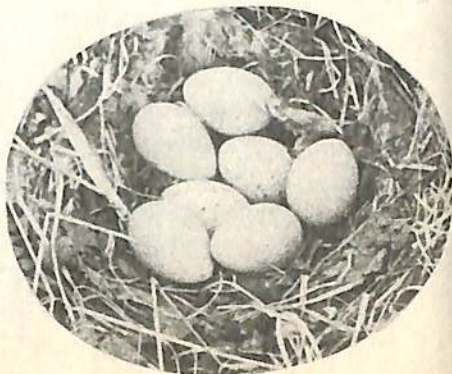
A Capercaillie Singing in the City

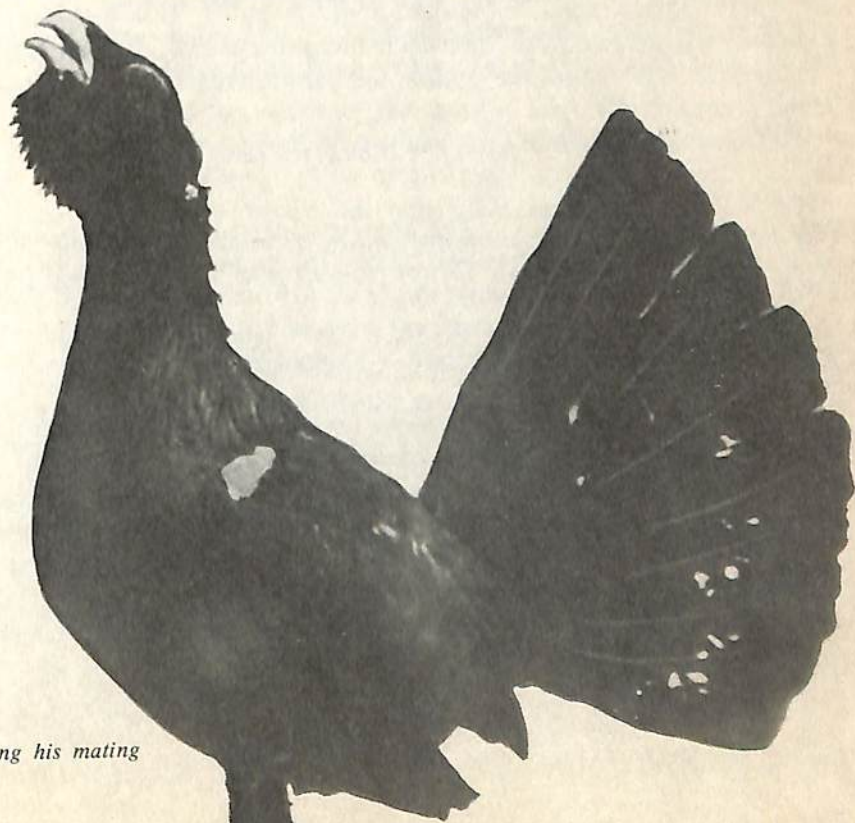
A biologist and photographer friend of mine yelled down the receiver: "Drop everything and go to the Zoo! A crazy capercaillie is singing his mating song there. He's not afraid of people. More than that, he is attacking them as though they were his rivals. The attendants have to beat him off with a switch when they clean his pen... It's a miracle, it really is!"

Whoever has happened to see the mating games of capercaillie knows that this is a mysterious rite, performed in the depth of the forest, often inaccessible because of thickets and bogs. Capercaillie are retreating ever farther away from human noise and their numbers are diminishing.

You need amazing luck to watch the pairing rite of capercaillie. I could understand my friend's excitement. Of course we knew about the capercaillie farms in the Darwin and Berezina preserves,[14] we knew that these birds had got used to people and now

A capercaillie hen

A capercaillie nest

bred in captivity, but still — a singing capercaillie in the centre of Moscow was indeed a miracle.

The next day I was at the capercaillie's cage at 10 a. m. The city street was roaring beyond the fence. The sun was shining brightly, and the Zoo, as usual, was full of noisy crowds. Even so, only half a metre away a capercaillie was singing his mating song. The same as they sing in the forest — the mysterious and age-old, unique capercaillie song. Full of passion and fiery spirit, he looked very healthy and beautiful, and not at all "crazy" indeed, just like any other capercaillie singing in a mossy bog. What's more, he was not put off by people, asphalt, or the traffic. He was calling to his mate so as to continue his ancient breed. It was incredible! Here was a contemporary of the mammoth, a live relic singing his mating song in a city, daunted by nothing! And walking about in the cage was a speckled capercaillie hen, clucking matter-of-factly. So they were going to have a new brood of chicks this year. Were they? Of course this depended on whether the Zoo's workers would be able to provide the necessary conditions. I hoped they would. After all, here was a capercaillie cock singing in a zoo!.. After all capercaillie chicks are hatched in incubators. Our zoologists have scored quite a few successes here. The numbers of this rare bird may now be increased in our forests. Just look at this singing capercaillie. Isn't he a handsome creature? It is not for nothing that he is also called the northern peacock.

A capercaillie cock singing his mating song in the Moscow Zoo

After the Barguzin Sable

We were setting off for Lake Baikal. In Moscow spring had already announced its arrival with the cheery tinkle of melting icicles, and the March winds were gradually eating away the thick snowdrifts, but in Transbaikalia, the weathermen informed us, blizzards were still raging and the frosts were living up to their Siberian reputation.

Glancing at our luggage, a passer-by at Domodedovo Airport asked jocularly, "Off to the North Pole, are you?"

We certainly did have an impressive-looking mountain of suitcases, boxes, and trunks. We were taking along cine- and photo-cameras, various equipment, sleeping bags, fur coats, felt boots and a lot of other necessaries, including potatoes (at least we should have decent food the first few days). You see, we were going to the taiga forests, and there was hardly going to be a shop under every cedar-tree. So we tried to foresee everything. The result was half a ton of luggage for six people.

We were to cover a distance of 6,000 kilometres. The first lap was to Novosibirsk. Then a plane would take us to Ulan-Udeh where we have to board a smaller aircraft and finally land at Davshe, the heart of the Barguzin wild nature preserve. From there we were to go on a two-week trek to make a film entitled *The Sable, a Siberian Animal* for the Tsentrnauchfilm Studios.[15] I was going along as an extra annalist and porter, hoping secretly to bag a few good photographs.

Filming in the Wilds

The average cinema-goer often imagines that making films is an easy and exciting business. After all, so many tricks and magic deceptions have been thought up... To be frank, this is what I thought, too, until I saw the work involved.

Forestalling the story, I shall say here and now that the film *The Sable, a Siberian Animal* has already been released. Although it is only 10 minutes long, it took almost a year to make.

The film was directed by Yevgenia Taravkova. The director of photography was Nina Yurushkina, Merited Worker of Arts of the RSFSR, State Prize winner. The manager — Valentina Rodina, the cameraman's assistant — Yevgeny Lakeyev and the designer — Boris Kazakov, were the other members of the production team.

After reading the script, I was sure that I would see a genuine sable hunt in a genuine Siberian forest. I could already imagine guns firing and someone picking up dead sables, and releasing animals from traps. Heaps of sable pelts gave off a mysterious sheen, akin to the glitter of gold foreign merchants used to pay for the precious fur.

I was also excited by the idea of seeing a nature film being made.

I recalled Alexander Zguridi's films *The White Fang, The Story About a Forest Giant, Black Mountain*. The director of photography in all those films was Nina

Yurushkina. Of the many films she had made (and there were several dozen of them in all) I was most impressed by *The True Story of the Forest,* a charming and tragic full-length colour film about the life of a family of beavers. It showed a fight between the beaver family and a "trespasser", who invaded their territory; a beaver-cub being pursued by a huge pike; the life of the animals in their hut; a life-and-death clash between a beaver and a wolf and a lot else. The story developed so spontaneously, the animals behaved so naturally even at the most dramatic moments, that even zoologists could not understand how some of the sequences had been shot. I remember a hunting expert commenting: "I just can't imagine how they squeezed their way into the beavers' hut."

I recently visited the Voronezh wild-life preserve where the film had been shot over 30 years before and saw the hut in question. There was no need to squeeze your way into that hut. Its front wall was made of glass. Of course, the most difficult part was not building the model but getting the beavers to live in it and behave naturally before the camera. Such work takes months. Infinite patience and real inspiration go into the shooting of the sequences envisaged by the script, for the animals will behave the way you want them to only by chance, and one can never tell when this will be.

The making of a documentary film about animals demands a lot of other things from the people involved.

In the very first hours I was with the group I realised that my companions were seasoned travellers. The luggage, which we kept reloading from one plane to another, was packed with great expertise. Everything was easily available. The director of photography, the most experienced traveller in the group, kept the luggage under constant observation. Nina Yurushkina had shot films in China (*Along the Jungle Path*), India (*Black Mountain*), Africa (*The Wild Life of Gondwana*) and in innumerable locations in our country where she had spent months stalking animals with her cine-camera. I am sure it would be no exaggeration to say that the distance she had covered in the course of her film-making travels would equal several round-the-world trips.

I, too, had done quite a bit of travelling, I had lived for long stretches in forests and mountains, walking hundreds of kilometres with a knapsack on my back. But I must admit that this trip taught me many things and opened my eyes to a lot of the finer points in the profession of documentary film-maker. Apart from talent, skill, passionate love of your profession and an ability to take risks and, at the same time, reduce risks to a minimum, one needs sheer stamina. Otherwise all the other qualities have no chance of being used. We cooked our own food, chopped firewood, heated stoves, carried water and helped to make the sets.

Of course, the director supervised everything, but otherwise there was no boss in the team. I was greatly impressed by the understanding and harmony between its members. They respected each other's opinion, sought artistic solutions together, and they all constantly had in mind the principal creative link in the team — the cameraman. For it was on his work that their success largely depended.

We often speak about the secrets of one or another profession. Are there any in the

work of nature film-makers! Of course, there are, and they make no attempt to conceal them. The excellent directors Alexander Zguridi,[16] B. Dolin and Vladimir Shneiderov have written books about their travels and filming expeditions in which they reveal the secrets of teaching animals and birds to "act" and the techniques of their filming.

Here is what the Soviet writer Yuri Nagibin wrote in his foreword to the story "The Path of Selfless Love" based on a film script by the same title (the hero of the story and the film is a lynx named Kunak): "The lynx behaves so naturally, so spontaneously on the screen that you imagine the film was quite easy to make. But it was not. This seeming ease cost two years of hard effort, and every sequence took infinite patience, sweat and even blood. For the lynx, when it got tired of the annoying camera, was inclined to forget about acting and vent its natural temper on its fellow actors."

Of course, a sable is a much smaller animal than a lynx, but it also has a temper and very sharp teeth.

The film, which tells about the restoration of the sable population in Russia, has some unique sequences, for instance, showing a female with her litter in and around the nest. The camera managed to pin down on film a mystery of nature which even native taiga-dwellers have never seen.

The film *The Sable, a Siberian Animal* tells young viewers (and it is intended primarily for children) not only about the life of sables, but, first and foremost, about the grandeur of Russian nature and about the work involved in making it even richer and more beautiful.

"Furry" Treasure

I have been "sable-hunting" many times, coming back often with a "full bag", but not of the kind you can make a fur hat or, even less so, a fur coat of.

The forests I traipsed through were teeming with sables. And yet each "catch" cost a lot of hard work.

In the first place, a sable moves so fast that you have to be a crack shot with your camera. So I had to learn to focus and set the exposure in a few seconds. This proved far from easy even on a sable farm and I succeeded only after endless failures.

A black streak of lightning — this would be the most apt description of a sable, and compared to it a squirrel moves like a slow tortoise. You cannot imagine what a variety of poses this nimble animal can assume. No photograph gives full credit to the pliancy of its body.

Now it stands on its hind legs and looks like a small bear-cub in the circus. Its attractive face expresses frank curiosity. Its beady eyes drill into you. You're sure it can see every move you make. You press the button. Click! But the sable is already hanging head-down on the opposite net-wall of the cage. Click — and it jumps right at your lens, making you start back, and then pushes springily and flies back. It is an acrobat — graceful, nimble and bold. And breathtakingly quick. So quick that when

you develop the film you discover to your dismay that barely five or six stills out of a hundred are at all usable.

You may consider yourself exceptionally lucky if you catch sight of a live sable in the forest, even now that they have increased considerably in number. Only specially trained people manage to see one.

The sable's fur is hard to describe — it is almost weightless, silky, shiny and strikingly beautiful. What's more, it is very durable and warm. In other words, it is as precious as jewelry, even if more practical.

In the book *Voyage Beyond Three Seas* the 15th-century Russian merchant and traveller Afanasi Nikitin tells of his journey to India. He was robbed on the way but managed somehow to salvage one sable pelt, and then bartered that one pelt for a thoroughbred Arab stallion. Just imagine — a stallion for one small pelt!

The colour of sable fur varies from sandy-yellow to pitch-black. The latter is valued especially highly. The most expensive sables are those with black pelts and a very small light spot on the throat. You find them very rarely in nature — perhaps one in a thousand.

How many generations of hunters have prayed, as they followed a sable's trail, that the animal would prove to be black. But very few have had such luck. Some hunters have never seen a pitch-black sable in their entire life.

By the turn of this century the sable had been so mercilessly hunted, that it was on the brink of extinction in Siberia, from the Urals to the Pacific Ocean. It was considered that the animal could not bear the smell of smoke and went in mortal fear of human habitation. Other experts, however, blamed the unrestrained hunting for the dramatic decrease in the sable population and campaigned for strict protective measures to be taken and for special preserves to be set up. The first such establishment was the Barguzin wild life preserve.

By the Sea

"Oh laddie!" an elderly Siberian replied with a sigh to my question about Lake Baikal. "In the old days you got your ears boxed for calling it a lake. It's a sea! And not just a sea, but a sacred sea. Baikal was respected and feared, it was. It would not stand for any nonsense. It fed you and it clad you, but at times it could also take everything off you, even your life. Yes, harsh Father Baikal was..."

"And isn't it now?"

"Well, see for yourself. Baikal is just the same, but it's not so respected now. It's called a lake. All kinds of factories have been built on its shores. There's less *omul*, a variety of salmon, and no sturgeon at all. And then there're all these motor boats, launches, oil... The technological revolution — that's what's done it..." He sadly waved his hand.

"Aren't you a bit on the glum side, Dad? There's more sable, though, isn't there?"

"That's to be sure. The sable has been resurrected from the dead, one might say.

A black Barguzin sable

A sable stalking its prey

Two-months old sable cubs

A hunting sable

A sable hiding from a dog in the crown of a cedar-tree

The preserves have done a good job. But one can't help feeling worried all the same. We must get more organised."

I recalled this conversation when our plane landed in Davshe.

The dark-green forest rolled down the Barguzin Range to the shore of the sea lying under a dazzling white cover of ice and snow. One hillside, though, was almost bare, and fallen trees were strewn about it in chaotic piles.

"What happened there?" I asked some old-timers. "Did a hurricane pass that way?"

"No," they answered. "There was a forest fire there twenty years ago."

"So long ago? Doesn't anything grow there now?"

"A few trees, but not all that many. A cedar forest takes a hundred years to grow after a fire. It's a terrible thing, a forest fire."

I was told that there was a wave of fires in the preserve quite recently. Everybody joined in fighting them. Even detachments of Baikal-Amur Railway builders came to help. The forest here is really precious. So, there surely must be a way of averting fires in a preserve.

Davshe, which has a mere couple of dozen houses and about a hundred residents, all workers in the preserve, lies on the shore of Lake Baikal in Davshe Bay, protected on both sides by humpy wooded promontories. It is a very picturesque spot, far removed from civilisation. It is 120 kilometres from Ust-Barguzin, and no less than 170 kilometres from Nizhne-Angarsk, the district centre.

The preserve stretches along the shore of Baikal for 50 kilometres. To the east it is bordered by the Barguzin Range. In all it covers just over 260,000 hectares. As it is so far from towns and villages, it receives very few visitors.

In summer, however, one can easily reach it by motor-boat. And in winter a considerable number of vehicles use the road which is made over the lake's ice. And of course the preserve can be reached by helicopter at any time of the year.

The land on the north-eastern shore of Baikal, between the mouths of the rivers Tompuda and Chivyrkui, has been known, since time immemorial, as "Podlemorye" ("Land by the Sea"). This is the home of Transbaikalia's most precious wild animal — the black Barguzin sable. The pitch-black pelt of this animal, which is not very big as sables go, has a light blue underfur and is silkier and more beautiful than all other pelts.

The Barguzin preserve, which covers part of Podlemorye, has the specific task of protecting and studying sables. They are regularly caught and marked so that their migrations can be followed in the mountainous taiga.

A Sable's Tracks

The film crew were expected in Davshe: a telegram had been sent from Moscow in advance. The Committee in charge of wild nature preserves had given permission for ten sables to be caught for filming purposes and subsequently released in the taiga.

The specialist who saw us off in Moscow assured us that it would only take two or three days to catch the ten sables.

After the introductions had been made, we asked our hosts, "What about the sables?"

"They're down," they replied. "There're plenty of them in the taiga, and they seem to be thriving."

"We mean how many have you caught?"

"None so far. But don't worry, we've set traps."

Deep gritty snow was lying in the forest. The temperature sometimes dropped to 50° below zero that winter. The frozen snow had the consistency of sand. It was difficult to walk over it even on broad skin-covered skis, and gun dogs were not taken into the forest at all because they sank almost up to their ears in the snow.

Trappers went out to check the snares every day, but they were out of luck.

"Look here," we said anxiously, "perhaps there aren't any sables around, perhaps they've moved elsewhere?"

"Why should they?" forester Konstantin Chernykh, who had been instructed to help us, asked sedately. "There's a Tom running along the river by the houses over there."

"What Tom?"

"Why, a male sable."

"Right by the houses?"

"Ay."

The crystal-clear gurgling Davshinka River flows into Baikal at the edge of the settlement. Even during hard frosts it breaks out from under ice here and there, and babbles merrily as it runs over its pebbly bottom. On a hill, a hundred metres away, columns of smoke rise into the sky above the sturdy Siberian log cottages. A path runs down to an ice hole in the river where the villagers get their drinking water. There is a small bridge across the river to the taiga on the other side. Sure enough, there was a sable's trail beside the bridge.

Fancy that! The animal had been here quite recently, and the smoke had not frightened it away either.

Most of the preserve workers were well informed about sables' habits and methods of catching them but the chief specialist was Yevgeny Chernikin, a senior research worker. He had recently defended a doctorate on the ecology of the Barguzin sable. During the fifteen years he had worked here, he had walked the length and breadth of the preserve and recorded hundreds of most remarkable observations of the life of this wary animal, which is so difficult to study in its natural habitat.

Yevgeny Chernikin told us a great deal about the Barguzin sable and gave us his thesis to read. Here are some excerpts from it on the way the sable behaves near human habitation.

"In October a sable entered the yard of the end house of Davshe. The people tried to chase it up a tree in the yard, but the sable escaped, without showing any particular fear of man."

"On June 4th, at 10 in the morning, a male sable, about a year old, ran past a hunter's cabin in the taiga in full view of the people standing outside. It was chased up a tree by a dog and then caught and marked. Incidentally, there was a campfire burning in front of the cabin and a dog was lying beside it. Two men were sitting by the fire talking loudly among themselves, and even so the sable came very near the cabin."

"An adult sable was brought to the settlement on a motorcycle. It was carried inside a house and its head allowed to poke out of the sack. When a saucer of milk and a chunk of bread were put in front of it, it at once lapped up the milk and ate the bread with gusto. It seemed quite unruffled and did not object when a hunter stroked it behind the ears. Without batting an eyelid (literally!) it endured the fairly painful marking operation (when an ear is pierced and a special mark inserted.—*Auth.*) and afterwards had another meal... But when it was taken outside a few minutes later, it started struggling and managed to bite the hunter on the finger before being released.

"Ordinarily, many sables accept food on the second or third day after capture."

Of course, wild animals do not come near people very often. But if the sables are not frightened or chased, they will not shy away from human habitation.

Altogether Chernikin has marked several hundred sables. Usually they are caught in autumn. Dogs chase a sable up a tree, and someone up a nearby tree throws a noose attached to a stick over the animal's neck. There have been instances of the same sable being caught two or even three times during the marking campaign.

After hearing such stories one might imagine that catching a sable in the preserve was an easy enough matter for experienced people but this was not so at all.

Making your way across the taiga even when it is dry in summer is difficult enough. In winter only very strong and fit people can do it. I noticed that most of the preserve's workers who often went into the taiga were non-smokers. They were good skiers, and could make long treks with a heavy load on their backs. They were all lean and possessed great stamina. Besides, like all true hunters, they thought nothing of repairing skis or making a new pair. They could also drive motor-boats and snowmobiles, build a cabin in the forest.

Some of the preserve's workers hunt fur animals. They are assigned hunting sectors outside the preserve's territory, and are given a quota of squirrel, kolinsky and sable pelts.

On the River Kudaldy

We filmed a sable hunt on the South Cordon, 30 kilometres from Davshe. We travelled there in a van by a road across the lake's ice. Where the road was free of snow, through a metre and a half layer of ice we could clearly see the bottom of Baikal, clusters of white pebbles, and shoals of greyling and other fish. Closer to the shore there were crystal-green clump-like ice-hummocks

from some of which long transparent icicles hung like fantastic beards.

The South Cordon, Sosnovka, lies in the mouth of the Kudaldy River. It used to be the centre of the preserve, and a memorial plaque now stands here with the inscription:

"On June 1, 1914, an expedition landed here consisting of G. G. Dopelmair, K. A. Zabelin, Z. F. Svatosh, A. D. Baturin and D. N. Alexandrov. As a result of this expedition in 1916 the Barguzin Sable Preserve, now the Barguzin State Preserve was established."

Here began the work of reviving the sable in the vast expanses of Siberia. As you stand by the plaque, you realise what a difficult and vast job it has been. Today the Siberian taiga is again populated by sables. The sable population is now assessed at 600,000-700,000. This is a great victory for Soviet biologists and field workers.

The world over the sable has always been regarded as a Russian animal because only in Russia has it been found in large numbers. The sable is indeed one of our national treasures and sources of pride. And the Barguzin preserve has certainly played a great role in saving it.

The person in charge of the cordon, Ivan Sviridovich Orobtsev, a tough-looking bearded old man looked at my fur-lined boots with a critical eye.

"Won't you freeze in those leather things?" he asked when we had set up our camera on a spot we had trampled down in the snow.

"But they're fur-lined."

"Oh, I see."

A couple of hours later I was doing a lively tap-dance. You see, the boots had no inner soles, and my feet were being scorched by the frost.

Ivan Sviridovich took me inside, got a piece of felt and a pair of scissors.

"This frost is nothing," he said, working deftly with the scissors. "When it hits fifty, and there's a bit of wind to boot, that's really something... And you're out on the Baikal in a snow-mobile or up in the hills, and it's not like Tashkent there either, believe you me. But you needn't be scared of frosts if you're dressed right. You wear one set of clothing for riding on the snow-mobile, and another, lighter one, for skiing, but it's got to be warm too. But the main thing is your footwear, and the main thing in your footwear are the inner soles. I always put two or three in a boot. Here you are," he said giving me a pair of thick soles. "No frost will get you now."

Ivan Sviridovich makes his own boots out of soft leather and lined with fur or felt. He usually wears two pairs of woollen socks. Under his sheepskin he has a thick sweater and fur-lined trousers. And he has two pairs of mittens on his hands — one pair with fur on the inside, and the other with fur on the outside. He also wears a fur hat and a warm scarf. His beard provides additional protection against fierce winds.

"Yes, it really does, don't laugh," he said with a sly grin. "My beard keeps the cold out too."

Later I heard a story about how Ivan Sviridovich had saved a young companion

in the taiga from frost-bite. The young man was wearing felt boots, and bore the fierce cold as long as he could. But then suddenly he felt his feet growing completely numb, and he told Ivan Sviridovich.

The old man quickly built a fire, cut some fir branches and took off the man's boots. Then he rubbed his feet with snow and pure spirits, gave him his spare pair of socks and wrapped his feet up in whatever warm things they had. The lad is now as nimble on his feet as ever, although he was then in very grave danger of losing his feet. The taiga is merciless to incompetents.

When Konstantin Chernykh and I set out to set sable snares, Ivan Sviridovich shook his head doubtfully. He had no faith in our success. According to him the sable cannot be caught by a head-on attack. On the other hand, it sometimes happened that one would simply come along and ask to be caught. Now it was our turn to be doubtful.

"Ask, you say?"

"Here's my witness," said Ivan Sviridovich, pointing to his wife Yevdokia Ivanovna. She nodded assent.

One day in 1971, when Ivan Sviridovich was still working in the Altai Preserve, he went haymaking, taking his dog Bullet with him. They came out into a meadow. Suddenly Bullet scented a sable and flushed it from its cover. Sables are terrified of dogs. Where could the animal seek safety? There were no trees nearby. So it leapt onto Ivan Sviridovich's head. Ivan Sviridovich grabbed hold of the animal. The sable bit him several times, but he still managed to bring it home. His wife gasped: "Alive, is it?"

They admired the animal and then set it free in the forest. But it certainly was an unusual episode.

Chernykh skied briskly through the sparse wood towards the hills in the near distance. He moved along with such ease that I barely managed to keep up with him.

They had talked me out of trying the Evenki skis, made of very thin strips of wood and lined with sealskin as a boot with a thick heel might break them. That is why local hunters wear soft boots made of deerskin, known as *torbazi*. Mine were heavy skis bought in a shop and given an extra sealskin lining.

Every now and then Chernykh would stop, examine the tracks in the forest and listen to his dog barking. Then he waved to me, urging me to go faster. Soon he found fresh tracks of a sable. Then more tracks. But the animal made loops of its trail to confuse us. And it succeeded and escaped the dog.

"Ah, it's a young dog," Chernykh said regretfully. "If only I had my own dog with me! But the snow is deep. Any dog would have a hard time here. Just watch Dunai, the artful dog is running along our ski track, doesn't like wading in the snow, the dodger! Not many sables around, worse luck!"

"Aren't there? Look at all these tracks!"

"D'you know how many tracks one sable can leave? They've been frightened away. In the old days you'd be fishing in an ice-hole on the Baikal, and a sable would creep up to the hole and steal your catch. They weren't afraid of going out onto ice. But now

there're too many people milling around the preserve. They upset the sables. And we have poachers too."

"What? Poaching in a preserve?"

"That's right! We aren't strict enough with them."

A Bunch of Sable Pelts

Our camera was trained on a bunch of sable pelts. They had been bagged by Konstantin Chernykh, on his sector outside the preserve. There were six pelts in the bunch, all of top quality. The dark fur with its evenly spread, light shiny hairs was exceptionally beautiful.

Chernykh is a native of these parts. He has been hunting since childhood and is among the best hunters in the district, light-footed, competent and hardy. He knows everything there is to know about hunting and snaring sables. Every year he helps to catch the animals for marking. He has seen hundreds of sables in his lifetime.

I discovered a curious fact: when I asked both old-timers and schoolchildren in Davshe how many sables they had seen, out of ten people not one had ever seen a live sable. Imagine — people living in the homeland of sables never having seen a sable!

I must add that the film studios had promised to pay for every sable caught (to be later released, of course) the price paid by fur-procuring stations, that is, 190 roubles. A pelt bagged in the forest usually fetches 85 roubles. So the catchers did their best. And yet they failed to catch a single animal.

I was told in Davshe that there were about a thousand sables in the preserve. They multiply and move away to hunting territories in the vicinity. Sables marked in the preserve were caught as far as 300 or 400 kilometres away. Still, the wary animal was very rarely seen in the taiga.

Konstantin Chernykh demonstrated in front of the camera methods of sable hunting. He showed how to set up a snare and take the dead animal out of it. His dog chased an imaginary sable up a tree, and he placed a net with a bell underneath. Coming down the cedar the sable gets caught in the net. The hunter untangles it and puts it in the bag.

The film was shot by a small group, but many people helped in the film-making. They were workers of the Barguzin and Altai preserves (we visited Altai as well) and zoologists.

In the end they had to film sables taken from the Saltykovsky sable farm near Moscow. Several animals were selected, descendants of the Barguzin strain which hardly differed from wild sables in colour and other features. The fact that such animals could be found is yet another achievement of Soviet sable-farming. For only in the Soviet Union is the sable bred in captivity.

Success in this undertaking was slow. Neither the hunters nor the zoologists knew when the sables had their mating season. The first person to discover this was Manteufel, whom I have described in preceding chapters of this book. In the '20s with

the help of the young biologists of Moscow Zoo, he established that the sable's mating season was not in early spring, as had been supposed, but at the height of summer.

And finally, on April 3, 1929, the first sable litter was born in captivity. The mother was called Crooked Tooth. This was the first step towards sable cage-farming.

A tame sable at a fur-animal farm

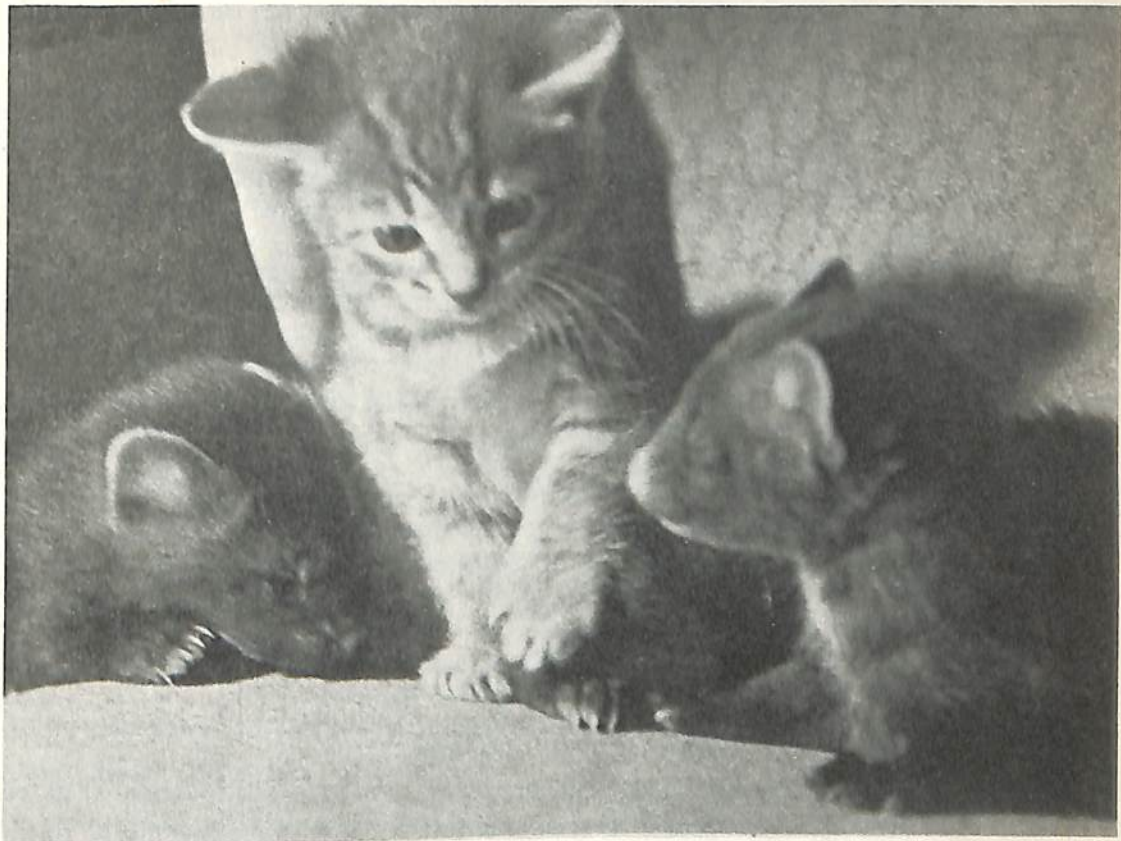
The family raised by Mother Cat

Nina Trofimovna Portnova, a one-time member of the group of young biologists of Moscow Zoo, is now a veteran sable-farmer. She began working in a fur-animal farm near Moscow in 1929 and she has devoted her entire life to fur-animal farming.

"In the early 'thirties," Nina Trofimovna told me, "our farm became the centre of sable breeding. It was up to us to discover how the sables caught in the taiga should be cared for, fed, and protected from diseases. But our chief task was to develop the ideal sable with dark, silky and thick fur, without a light spot on the throat and, on top of it all, used to life in a cage."

And such a strain was evolved.

What difference is there between the sables in captivity and those in the wild? In the first

place, the former simply do not exist in the wild. All the best points of the wild animal have been concentrated in the farm strain. This does not mean that the wild animal is not good enough, although its pelt does fetch a lower price at international fur auctions. The wild sable has its own good points. It is more varied in colour, catering for all tastes, so to speak.

And, most important, there are many more wild sables. They live all over Siberia, from the Urals to the Pacific Ocean. They are not found in European forests.

Wild sables are very timorous and subject to fits if put under stress. Considerable work was needed to make the sables calmer.

Even so, when a stranger appears at a sable farm, the animals start dashing about their cages. The netting drones under the impact of hundreds of paws. The silky fur sparkles mysteriously. A newcomer may imagine that sables are normally so nervous. But this is not so at all. However lively, a sated sable is quite content to relax in the shade for an undisturbed nap.

Sables' habits are very unusual. They keep to themselves, with the exception of females with young. They pair mainly in July and August. In natural conditions they

are active at dusk, but they may also go hunting in the daytime. They live in forests. They prefer thickets of creeping cedars and are also numerous in mountains and rocky terrain.

They are predatory beasts, bold and competent hunters. They cover many kilometres a day in search of prey, but, as distinct from the marten, mostly travel along the ground. They use various devices out hunting. They sometimes sit in ambush like a cat, waiting for a mouse to poke its head out of the hole, or they stalk black-cocks buried in the snow.

And they chase a musk deer along deep snow till it drops from exhaustion. Quite often they overpower an enemy many times larger and stronger than themselves. Incidentally, a musk deer is very likely to wound or even kill its hunter, but this does not deter the sable. When there are plenty of musk deer in the forest, they make up a considerable part of the sable's diet.

Still, the bulk of a sable's diet consists of small rodents. A sable is also partial to capercaillie and hazel-grouse. It has been observed fishing in brooks. It kills squirrels and its own smaller kinsmen such as kolinsky and ermine.

Nor does the sable scorn fruits and vegetables. It eats cedar nuts, cranberries, mulberries, rowan-berries. Initially, the sables at the farms were given the food they were used to in the taiga: fowl, honey, fruit, forest berries. The cost of such a diet was enormous, and did not justify itself.

Today farm sables are mostly fed raw meat, which accounts for some 80 per cent of the diet. They are also given milk, bread, carrots, lettuce and various vitamin and mineral additions, altogether 8 to 10 components. The diet is calculated to include all the nutrients a sable needs. So feeding a caged sable adequately is quite a business.

And, of course, keeping a sable as a pet is out of the question. The animal will give its master no end of trouble and will most probably not survive.

In winter wild sables often change their shelters. They usually make a nest in tree-holes among the roots, which they keep very neat.

Strangely enough, despite its warm coat the sable has a distinct aversion to hard frosts. When it is very cold, the animal may stay in its warm nest for many days on end. If a sable is caught in a snare in winter or is driven by dogs into a tree hollow and deprived of a chance to move, it freezes to death.

Even on farm sables have perished from exposure. Naturally, sables living in captivity are different in many respects from wild sables. For instance, they are more active in the daytime and not so timorous. Specialists believe the sable to be the most intelligent of all fur animals bred in cages. It is very observant and enterprising.

Here is what V. S. Slugin, the chief veterinary surgeon of the Pushkinsky fur-animal farm in Moscow Region, told me: "If you put medicine into mincemeat in full view of a sick sable, it will watch the procedure and refuse the meat point-blank. But if medicine has been put into its food without its knowledge, it will eat the meat with relish."

Healthy female sables are usually very tender and caring with their young. There may be from one to five in a litter, and most often two or three. The mother defends her progeny with desperate courage. In an emergency a mother will take her off-spring into her mouth and carry it to a different shelter. Of course, there is not much room in a cage. So if the mother does take a whelp from its nest, she never lays it on the netting floor, but finds a place for it on a ledge, in the feeding trough or the drinking bowl. The young grow fast and at three months weigh as much as an adult animal, that is, from 800 to 1,400 grams. The sable's life expectancy in captivity is 15-16 years.

The sable is an aggressive animal. It is quite apt to attack a keeper. Once its jaws have locked the sable hangs on until some instrument is used to prize them open. Or it can inflict multiple bites. These bites, by the way, are much more painful than those of other fur animals. Sable keepers have to observe safety regulations very carefully. The sable is a predatory beast, there is no doubt about that.

Still, every farm has its docile, tame sables. Of course, there are not many, and even fewer of those who are fond not only of one particular person but of people in general.

I saw such a sable by the name of Tyapa at the Saltykovsky sable farm near Moscow. I photographed it and picked it in my hands. Like all sables, Tyapa is very nimble and fast-moving. It is hard to describe what it feels like to have a live sable dash over your shoulders. It's delightful, but a bit frightening too.

For you know that this light furry creature with sharp claws is as fierce a predator as the lion. When Tyapa playfully nips the lobe of your ear, you get a sinking feeling in your heart. But when he jumps down and goes back into his cage you feel sad. It was wonderful to have him on your shoulders.

What wild animal can be taken as a symbol of Russian nature? There have been many different suggestions. Some say the brown or polar bear, others, the elk, the white crane, the squirrel or the desman. And of course the sable is always somewhere at the top of the list. As for me, I vote for the sable. I am convinced that the wonderful taiga animal deserves the honour.

So, as I was saying, the Barguzin strain of sable with its extraordinarily beautiful silky black fur was chosen for breeding purposes at the sable farms.

For over ten years a sable-breeding research laboratory has been functioning at the Pushkinsky fur-animal farm. One of its main aims is to breed coloured sable. This task may seem formidable to a layman, but animal experts are confident that it will be achieved.

Moscow's Darwin Museum[17] has a unique collection of stuffed sables, which were caught by trappers in the taiga: they are all different colours. There is a white, a spotted, a blue and even a golden sable. Just now, for selection purposes, much care is being taken to catch sables of these unusual colours alive in the taiga. It is extremely difficult, for such animals are found very rarely.

A competition has been announced among trappers. In the meantime, selection work is being conducted at the farms to breed strains with light coats, white legs or a large white spot on the throat.

A strain of blue sables... A dream? So far, yes. But a dream that may come true. And no doubt, when such a strain has been evolved, these unique animals will be descendants of the Barguzin sable, known even by word-shy hunters as "the treasure of Podlemorye".

The Tiger Needs Help Too

Of all wild cats the tiger is the biggest, strongest and the best hunter. Eyewitness accounts of meetings with tigers always have an aura of mystery. Since times immemorial tigers have been the heroes of tales and legends. The image of the tiger was contradictory and even unreal. Either it was recklessly brave, or wary to the point of cowardice. It could be noble, treacherous, cruel and vengeful.

Some peoples idolized tigers and never hunted them. Others cursed the man-eating beasts and gave them no quarter. But for the most part hunters had a healthy respect for the tiger. All the same the relations between the tiger and man have developed to the tiger's detriment. The tiger population is decreasing catastrophically the world over. In some places they have been totally wiped out. That is why the tiger has been included in the International Red Data Book, the document registering man's concern for wild nature preservation on our planet.

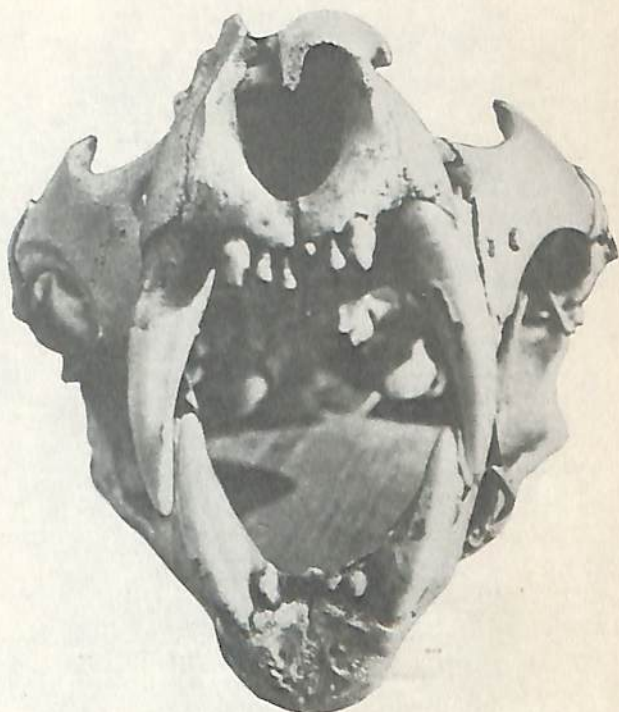
The biggest of all wild cats, the Amur tiger, lives in the Far East of the Soviet Union. It is a splendid animal. Its powerful lithe body reaches the length of three metres and it can weigh up to 350 kilos. And this giant is also graceful, agile and light-footed. Every little detail about it has its purpose. Even its sumptuous coat, which may seem rather ostentatious, is in fact a wonderful camouflage, making it invisible in the Far Eastern taiga, and even more so in the tropical jungle and the cane growths of Middle Asia.

The Amur tiger is amazingly hardy. It can withstand hard frosts and deep snows. Its long warm coat and a layer of fat protect it from the cold. Nor does it fear the heat. All tigers are excellent swimmers and usually stalk their prey near water. A tiger usually has a large hunting ground and sometimes covers up to 60-90 kilometres a day. It is at home in the mountains, too, being a skilful rock-climber.

It usually ambushes its prey near animal paths or watering places. It tries to creep up as close as possible to its victim and then pounces on it. The attack is incredibly fast. The tiger seems to have been shot from a catapult. It covers 15 metres in less than a second. But it is incapable of long pursuit. It usually kills its victim with a blow of its paw or bites it through the neck. Its fangs, long and sharp as knives, are a powerful weapon, as are its mighty sharp-clawed paws. Unlike the silent leopard, the tiger warns its victim by a mighty roar.

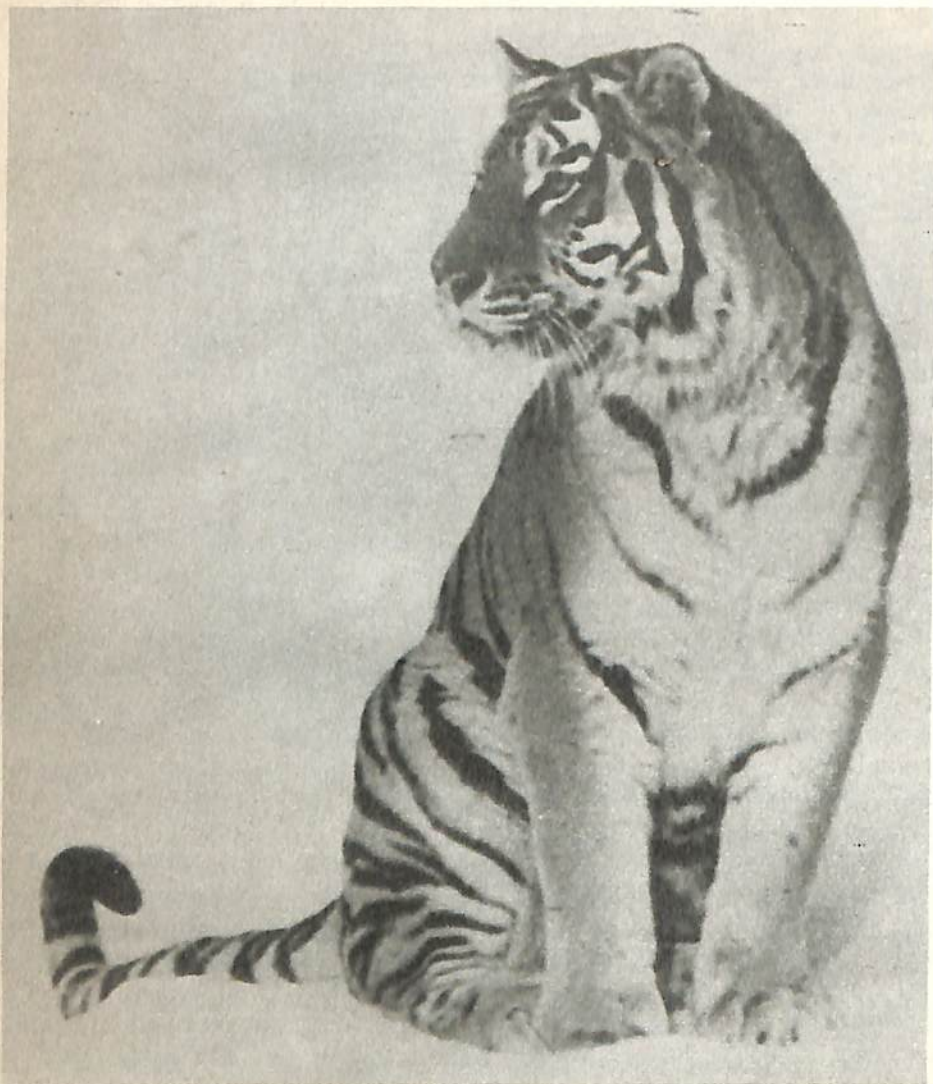
Taiga dwellers call the Amur tiger the hog herdsman. If a tiger meets a large herd of wild boars, he starts "herding" it. He follows the herd about, snatching young hogs whenever it feels hungry. A tiger will never attack old boars, which possess formi-

dable tusks and a ferocious temper and are quite likely to get the better of it. In a year a tiger kills some 60-70 large animals. Actually, it could make do with half this number, but it is a finicky eater, and as soon as the carcass goes off, it leaves it and starts out in search of fresh prey. At one go a hungry tiger can eat up to 50 kilos of meat. It mostly hunts hoofed animals, but it also likes hares, and sometimes fishes in a river. In short, its gastronomical tastes are wide-ranging. A splendid, resource-

The skull of a tigress which was shot in a deer park. The tigress had been destroying the deer population and it was necessary to kill it. The deer warden was severely wounded in the encounter with the ferocious beast but managed to get the better of it. He keeps this skull at home as a memento of the incident

ful hunter, a tiger will never go hungry as long as there is potential food in the vicinity.

The tiger has a particular "weakness" for wolves. Wherever the striped cat makes its home, the grey predators are doomed. The tiger pursues the wolves relentlessly, while the latter go in mortal fear of it and flee at its very scent. As persistently, the tiger hunts dogs. It tracks them down in the taiga, and snatches them near hunting lodges, sometimes almost from the doorstep. Occasionally it attacks domestic cattle. It is generally believed that this is the last recourse of a sick or old tiger. Sick or not, the tiger does its marauding in broad daylight, often before people's eyes. Eyewitnesses have told fearsome stories about the tiger's power and agility. It has been known to clear a two-metre fence carrying a large calf, and to tear a horse from its harness and carry it off into the jungle.

Yes, the tiger is a very dangerous beast. In tropical countries, particularly in In-

dia, there are man-eating tigers, which still take a considerable toll of human life. Incidentally, it is usually the people's fault if a tiger develops cannibal tastes. For instance, people may destroy too large a proportion of hoofed animals in the district, leaving the tiger without any means of subsistence, or they may maim it in an unsuccessful hunt.

The Ussuri tiger is a hardy and strong animal, and does not mind the severe winters in the taiga

The Amur tiger hardly ever attacks people, and only when it has to defend its life from hunters. On the whole the Amur tiger is remarkably peaceable as regards people, but often too curious for its own good. This makes it an easy prey for poachers, undeterred by the strict ban on tiger hunting in the Soviet Union. Today the total tiger population of the Ussuri taiga is estimated as 150 animals. The ban has not brought about a marked increase in their numbers because the tigers multiply very slowly. A tigress has a litter of from one to five cubs once in two or three years. So in her lifetime a tigress bears, according to zoologists' estimates, no more than 10 to 20 young, of which no more than half usually survive. In short, the threat of extinction is very real as far as the tiger is concerned.

In the Soviet Union the tiger population is carefully watched, and a census has recently been taken by biologists. This census is one of the measures envisaged by the long-term Operation Tiger, which is being carried out the world over on the initiative of the International Society for the Conservation of Nature and Natural Resources. Its task is to find real ways and means of preserving the tiger as a species.

The Walrus

A hundred years ago in the open sea some English fishermen spotted a huge animal, which they described as a terrifying and demonic-looking beast. These terrified people were right according to their own lights. A walrus really does look frightening to someone who has never seen it before: a huge heap of flesh covered with a thick furrowed skin and crowned by a small head with piggy eyes, thick brush of whiskers (vibrissae) on the upper lip and huge snow-white tusks hanging down below. These are weapons and implements for procuring food.

The walrus propels itself along with the help of two pairs of flippers. Underneath they are protected by rough corny skin which makes it easy for the animal to move about on slippery ice. The walrus makes virtuoso use of its fore flippers in procuring food and taking care of its young. Incidentally, the walrus moves its huge body about not only with the help of flippers supplied with small claws but also with its tusks.

It drives them into ice with terrific force and, straining its mighty neck muscles, heaves its body along. This is truly an unforgettable sight, especially in view of the animal's size. Adult males are up to four metres long and weigh as much as a ton and a half. The females are a third or a quarter smaller. But a ton is also no small weight.

Imagine what a hard time this huge clumsy animal has on dry land. To make up for it, it is wonderfully agile in its own element, water, and an excellent swimmer and diver. It can dive to a depth of 90 metres and remain underwater for half an hour. Walruses usually graze on shallow underwater sea pastures abounding in molluscs. They plough up the bottom with their tusks searching for bivalve molluscs, worms and crustaceans, their favourite food. They also catch fish, and will sometimes even kill a seal. Some walruses are inveterate predators and apt to hunt even their own weaker fellows. The walrus usually goes for a seal in water, attacking from below and

piercing its prey with its tusks in the chest or side.

But walruses have their own enemies as well: killer whales and polar bears. Neither of these often attack walruses unless driven by extreme hunger, and they do not always win. Hunters have often seen fights between a walrus and a killer whale or a polar bear end with the walrus driving its tusks into the back of the attacker. Actually, the walrus's main enemy is a man armed with a rifle. And it is man's fault that the walrus has been included in the Red Data Book. True, only the Atlantic sub-species is, the Pacific walrus, biologists believe, is so far in no danger of extinction.

So, how many walruses are there in the world? According to very approximate estimates, about 125,000. The Atlantic sub-species accounts only for a fifth of their number. There is every indication that the walrus population has stopped growing, and so protective measures must be taken if we are not to lose this superb animal. Walruses live in the shallow Arctic seas and adjacent regions of the Atlantic Ocean and Bering Sea. They are usually found in large herds and at certain periods of their life go out onto the shore and form large colonies. This way of life makes them highly vulnerable. Northern peoples have always hunted walruses and used their hides, meat and fat for their domestic needs. This small-scale hunting did no harm to the walrus population. It was in the 17th century when hunting started on an industrial scale that the walrus herd began to dwindle steadily. Walruses were killed by harpoons, spears and axes. Then guns were invented, and a small group of hunters could stage a massacre in a colony, killing several hundred animals in a day. And these hunters were not interested in meat or fat, only in tusks and skins.

Walruses are still hunted today, but there are many restrictions. Their aim is to preclude a decrease in the walrus population. You see, walruses breed rather slowly. A female reaches maturity at the age of five, and she only has young once in three or four years. There is usually one cub and very seldom two. The mating season is in April and May, and the young are born 330-370 days later. Walrus females are protective mothers and defend their cubs to the last. But many young die in the stampedes to which walruses are prone. Rushing helter-skelter for the water, they sometime crush fully-grown walruses, to say nothing of young ones. And a stampede may be caused even by a low-flying airplane.

That is why it is so important to carefully guard the colonies.

In the Soviet Union only the local population of Chukotka Peninsula and the northern regions of Yakutia are permitted to hunt walruses, and in strictly limited numbers too. Measures are taken to avoid the senseless killing of walruses.

The Japanese Crested Ibis

Of the thirty sub-species of ibises living on earth two have been included in the International Red Data Book: the giant ibis and the Japanese crested ibis. The latter is in the worst plight of all. A mere hundred years ago it was widespread in China, Japan and in the Russian Far East, in the valley of the Ussuri

and on Lake Khasan. However, it was extensively hunted for its tasty meat. Today this handsome rare bird is protected everywhere, and ibis hunting is, of course, strictly forbidden. Even so, it is nearing extinction and unless very resolute measures are taken, it will soon disappear from the face of earth.

We know little about the Japanese crested ibis and so all information about it is welcome, especially about any recent sighting of a bird, sites of nesting, habits, and so forth.

All ibises (with the exception of the spoonbill) can be recognised by their downward-curved bill. Their other characteristic features are long heron-like legs, with three webbed toes. Males and females have the same plumage.

The Japanese crested ibis is the easiest of all to recognise. It is smaller than a heron and its plumage is particularly vivid and elegant. Most of it is white with a slight pinkish sheen or grey. There is a red fluffy crest on its head. Its legs are scarlet. Its long curved bill is shiny black with a red tip. Despite its bright colours, it is not easy to spot. Even in the nesting locality it does not often show itself to people and never lets anyone come near. Its way of life is very secluded. It flies about mostly at night, and only extraordinary circumstances may cause it to fly in daylight. That was probably why the Japanese called the bird "the spectre".

The Japanese crested ibis prefers to live in marshy lowlands where there are clumps of trees. This is what the 19th-century Russian geographer and traveller Nikolai Przhevalsky[18] wrote of the ibis in his book *Travels in the Ussuri Region*:

"At the end of March, when the marshes begin to thaw out, the ibises move away and settle for nesting in small copses that are scattered like islands amidst the local impenetrable swamps. They build their nests on trees, and although I never actually found one, the local Cossacks and Chinese assured me that they had on occasion taken fledgelings out of nests..."

It must be said that ibises, like herons, take little trouble about their nests. They just toss a few twigs together and settle in. It looks holey from below, and the fledgelings sometimes get their feet caught in the bigger gaps.

Ibises eat frogs and various water animals. They prefer secluded places. In recent years no nests of Japanese crested ibises have been found on the territory of the USSR. But the birds themselves, according to naturalists' reports, were often seen in the summer of 1975 in the basin of the Ussuri.

The reasons for the catastrophical decrease in the numbers of these rare birds are, first and foremost, hunting, and the felling of forests in damp regions. Also to blame the draining and ploughing up of swamps, and the development of remote localities.

Some biologists hold that unless the Japanese crested ibis becomes adapted to living in populated areas it is doomed to extinction.

This is true, of course, but man can also help the rare bird avoid this fate. In the first place, by totally banning all hunting of the ibis, uncommon as it is. The ibis must be left in peace. Practice has shown that such seemingly simple measures often prove quite effective.

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The Goral

Uninformed people usually mistake a goral for an ordinary domestic goat. Indeed, the goral is nothing special to look at. But when, frightened, it dashes up a sheer rock, it at once manifests the power and grace of a wild animal. Even a fast pack of wolves cannot catch a goral in rocky mountains.

This small sturdy goat seems to grow wings. It races up sheer walls with the ease of a born rock-climber, flies over yawning precipices, courageously leaps down from what seem like lethal heights and escapes unscathed. However, it is only like this in the mountains. On a plain it is quite helpless. It makes unnaturally high leaps as it runs along and, of course, is no match for its pursuer in speed. That is why gorals keep near high rocks.

Moreover, a goral cannot run long for it gets tired fast. But in inaccessible rocks it can escape the most persistent predator. It will find a ledge somewhere high up and wait there in full view of its enemy. And the latter has to give up and go away. But a man with a gun has no difficulty killing the animal. Hence the fateful entry in the Red Data Book. The goral's thick warm fur and tasty meat have always been highly valued in the mountains.

In the USSR the goral lives in the ridges of Sikhote-Alin and in the coastal rocks of Southern Primorye in the Far East. All goral hunting is prohibited. There are also gorals living in the mountainous regions of Burma, China and Korea. But everywhere the herds are very small.

The goral's distinguishing feature is a blurred black stripe all along its back, from its nose to the tip of its tail, which may be 18 centimetres long and ends in a tuft of long hairs. The colour of the goral's coat varies from grey to russet brown. Zoologists distinguish six sub-species of the goral, depending on the locality it inhabits. They differ somewhat in size and colouring. Only one of these sub-species is found in the Soviet Union.

Life in the mountains is fraught with hardship and danger. And although gorals are well adapted to it, they often have a hard time — especially in winter. Even though they are well protected from the cold, they are greatly hampered by deep snow. It makes the procuring of food difficult and impedes movement, while wolves run easily over snow. So in snowy winters many gorals die of starvation and fall prey to predatory beasts. Nor do gorals have much peace in summer. The kids suffer particularly — from leopards, eagles, martens, lynxes and bears. Naturally, only the strongest and hardiest survive.

The goral is a very wary animal. Its hearing and sense of smell are excellent but its eyesight is poor. When it senses danger, it runs away but if it meets a strange, unfamiliar object, it circles round it, sniffs at it, stopping every so often, listening and peering at it. It may suddenly dash off, as if taking fright, but then come back. And this is repeated several times. It's just like a proper investigation. Only after it has made sure the object is harmless, does the goral calm down. When frightened, suddenly,

it emits a hissing sound and races off, and only later gives a real alarm call.

Gorals are not choosy about their food. They eat grass, leaves, buds, various berries, acorns, pine-needles, lichen, the bark of oaks and lime-trees. In winter they dig in the snow with their hooves to get at the grass and leaves.

Gorals usually roam in small groups or by themselves. They make conspicuous paths towards feeding sites. They treasure their territory and never venture far away. Here they know every nook that can give shelter from danger or just a chance to chew the cud in peace.

The goral looks much like a domestic goat. But it is a wild animal, nimble and wary, and few hunters have had the good luck of sighting a goral

Between September and November the gorals form pairs. Unlike other hoofed animals, the males do not stage noisy tournaments. The kids are born in May or June, usually one at a time, occasionally two. In the first two months of life the kids stay in remote inaccessible places, protected from the sun, rain and predators. In late July they begin to graze with their mothers but go on sucking till late autumn.

Gorals achieve maturity in their second or third year of life. This, naturally, slows down their reproduction.

Although practically all the countries where the goral occurs have adopted protective measures with regards to this animal, there has not been a marked increase in its population.

The Asiatic White Crane

Cranes... Birds from legends and songs. Their wondrously beautiful flight, their trumpeting, their magic dances — all this has captivated man since time out of mind. We all love cranes from childhood. But do we know much about them?

There were quite a few Germans in the exploring parties which tsar Peter the Great sent to Siberia at the beginning of the 18th century. When they heard from the local people about a large snow-white bird, they called it "Storch", which in German means "stork". In Russian the foreign word was modified to "sterkh" and adopted in this country as the name of the Asiatic white crane.

Actually the Asiatic crane is not completely white. The ends of its wings are black, but, as distinct from the stork, the secondary wing-quills are white. The bare front of its head, its bill and legs are bright red. It is a large bird, weighing up to 8 kilos and its wing-span is 2.5 metres. It is one of the 6 species of cranes that are found in the Soviet Union. It breeds only in the USSR, in the northern tundra and wooded tundra belts. During its migratory flights it stops near big lakes. It spends the winters in India, where it lives in marshes and flooded meadows. During this time the birds keep in families or form small flocks. The biggest flock known included 72 birds.

In the Soviet Union we know two breeding areas of the Asiatic white crane — in the water meadows of the River Ob in Siberia (the basins of its tributaries the Konda and the Sosva) and in Northern Yakutia (between the rivers Yana and Alazeya). In actual fact, little is known about the white crane's way of life and learning about it is becoming increasingly more difficult, because the overall number of the birds has fallen catastrophically to only 350 pairs. In other words, the Asiatic white crane is on the brink of extinction. It is therefore undesirable to disturb the birds even for scientific purposes. So, what *do* we know about this rare bird?

Asiatic white cranes return to their breeding places at the end of May. Only a few fortunate people have heard the melodious cries of the huge snow-white birds and have seen their nuptial dances.

Like all cranes, the she-sterkh lays only one or two eggs. The fledgelings are very aggressive from the moment they are hatched. During their constant fights one of them is always killed.

Nowadays ornithologists are using this circumstance to increase this rare bird's numbers. They take one egg from the nest and hatch the fledgeling in an incubator, or put it into the nest of a pair of grey cranes. This work is done in the preserve on the Oka River by Professor V. E. Flint. Several birds have already been reared. One of them was on view in Moscow Zoo in 1983-1984.

I photographed that particular crane. It was hard to believe that it was, indeed, a sterkh. It was so placid and unafraid of people. By rearing young white cranes in Central Russia together with grey cranes, ornithologists hope to induce them to change their migration routes and create a European population of the species. This may prove another way of saving the bird from extinction.

In the wild both parents take care of their young. They bravely defend their nest not only from polar foxes, but even from wolves, making effective use of their strong heavy bills. Asiatic cranes are cautious and prefer to avoid dangerous encounters. They are vegetarians (feeding mostly on green shoots and the roots of plants). In spring and autumn, however, before flying off, they eat fish, insects, lizards and small rodents. They migrate south in the second half of September. They are excellent fliers. For instance, they fly over the Hymalayas at a height of nearly 5,500 metres.

But many dangers stalk the Asiatic white cranes in their nesting places and particularly during their distant journeys. It is our duty today to protect these wonderful white birds, and guard them from these dangers.

The Snow Leopard

When I arrived in Frunze, the capital of Kirghizia, a republic in Central Asia, my friends told me two young snow leopards had been caught in the mountains and that I would be able to photograph them.

"Where are they?"

"At the Zoo centre's Depot."

A limited number of licences are issued every year for the capture of snow leopards for zoos.

They are very hard to catch, and only very few hunters know how to go about it.

The zoologist stopped by a cage and said:

"You'd better photograph this one. He's not so fierce. There's fine netting on the cage. I'll open the door and stand by with a long pole. If he jumps, I'll knock him down and shut the door. So you don't have a thing to worry about."

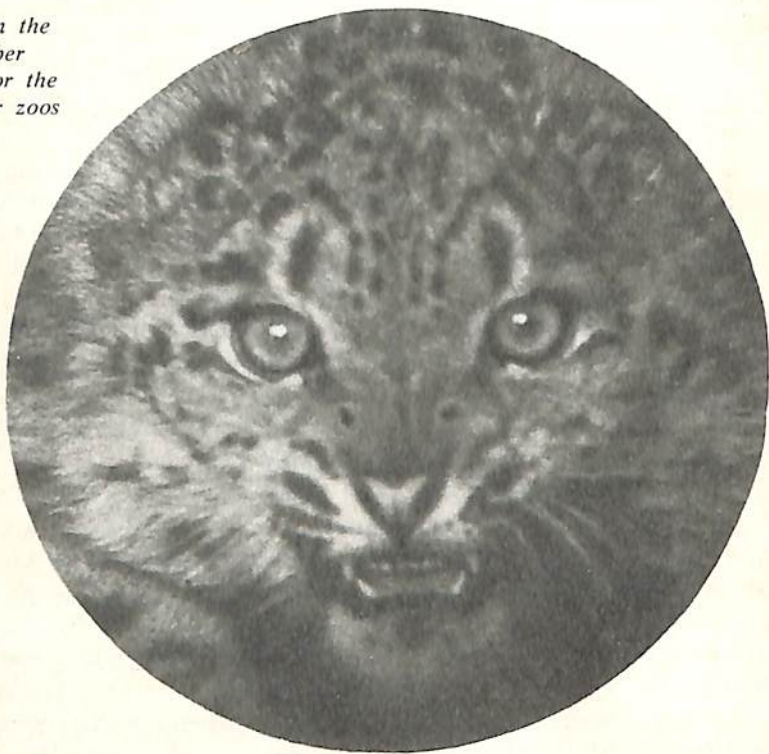
The leopard was lying in a far corner of the cage, all tensed up and snarling viciously.

I could focus my camera on him quite easily but I was far from easy in my mind, though the animal never jumped after all.

Its fur gleamed in the way the far-off ice-bound mountain peaks do. The snow leopard is perhaps one of the most beautiful and enigmatic wild cats. There is something demonical about it. Its long lithe body slithers among the rocks. Its fluffy silvery fur with a smoky sheen and evenly distributed dark ring-shaped spots protects it reliably from the cold and camouflages it well among the rocks. And protective colouring is very important for this patient hunter. The snow leopard sometimes lies in ambush for hours awaiting its prey.

One glance at a snow leopard in captivity convinces you that you are looking at a ferocious predator. Its snarling jaws are awesome. Its greenish-yellow eyes are brimful of fury. Fangs, long and sharp as daggers, glint in its half-opened mouth. The animal seems to be the epitome of reckless courage and ruthless ferocity. However, this impression is fallacious. The snow leopard is indeed a competent hunter. It can kill a roe-deer, a mountain goat and even an yak. It is also quite partial to rodents —

hares, marmots, mice, picas, partridges and mountain turkeys. But it is also very cautious and even rather cowardly. After eating its fill, it rarely returns to the carcass. It fears man and avoids him. In the Soviet Union snow leopards are found in the mountains of Central Asia and Southern Siberia. It also lives in the Hymalayas, Tibet and the mountains of Mongolia. It lives among the rocks, on snow-covered slopes, in alpine meadows and deep canyons as high up as 5,000 metres. To get to its hoof prey it goes down into the broad-leaved forest zone.

Many zoos have snow leopards. In the Soviet Union only a limited number of licences is issued every year for the catching of these rare animals for zoos

The snow leopard steals up to its prey or ambushes it. In the Soviet Union it is the largest wild cat after the tiger and the leopard. It can weigh up to 75 kilos, but more often weighs 23-41 kilos. Its body is about a metre and a half long, and its furry tail is 90 centimetres long.

Snow leopards live in pairs. The hunting territory of a family is quite large — from 20 to 30 square kilometres. They make their den in some inaccessible gorge, cave or crevice. In Kirghizia snow leopards have been known to use vultures' nests on low trees for their den.

The mating season is in spring. Pregnancy lasts 90-100 days. The litter usually consists of 4-5 cubs, which are born blind. Both parents take care of their family. The snow

leopard and the reed cat are the only two feline species which prepare a bed for their future family lined with their own belly down. No other cats take as much trouble over making their kittens comfortable. When sated, snow leopards like to doze and relax in their den. Once rested, they start frollicking about, rolling in the snow, and sliding on their backs down icy slopes. In a good mood these ferocious-looking animals purr like domestic cats. They don't take easily to captivity. To start off with they refuse all food and have to be forcibly fed. At the same time, they seem to ignore people and never try to attack them.

Today the snow leopard is rare even in zoos. There are very few living in the wild. For many centuries they have been mercilessly hunted for their beautiful fur. Hunting the snow leopard is strictly prohibited. It too has been included in the International Red Data Book.

The Menzbir Marmot

Anyone who has been to the virgin steppes has probably seen this fat and seemingly clumsy animal, whose Russian name, *baibak*, is a synonym for a lazybones. The steppe marmot certainly does seem incredibly lazy. His propensity for sleeping through the long winter months has earned him the reputation of the world's greatest sleepy-head.

Most marmots — and there are several sub-species of them — live in the steppe. Only a century ago they were widespread in all the steppes of Eurasia and North America. People were used to seeing them in their characteristic posture, sitting upright on their hind quarters, and hearing their sharp whistles. Incidentally, there is one sub-species among the marmot tribe which lives in forests of the American continent, and there are also marmots living high in the mountains. One of them, the rarest, is the Menzbir marmot. It lives only in the Soviet Union, and in a very small area, too, in the mountains of Western Tien-Shan in Kazakhstan and Kirghizia. The entire population is about 60,000 and, sadly, steadily diminishing.

The Menzbir marmot lives fairly high up in the mountains, up to 3,000 metres above sea-level, that is, near the snow line. The smallest of all the marmots, its body is 40-45 centimetres long and tail — 7-9 centimetres, it weighs 2-3 kilograms. For comparison, big marmots weigh three times as much.

The Menzbir marmot has a characteristic colouring. It has a dark back and sides, light cheeks, part of neck, belly and legs, and a black tail. Like all marmots, it lives in a burrow where it spends nearly nine-tenths of its life. The burrow is the marmot's castle. There it escapes from its enemies, rears its family and sleeps through the winters. It is not easy to dig burrows in the mountains but marmots manage to even in compressed deposits of crushed rock, digging whole labyrinths with numerous corridors and chambers. Suffice it to say that the nest chamber in the winter burrow is usually 3 metres below the surface and the total length of the corridors often exceeds 60 metres.

Each such burrow has a large hill-like elevation at its entrance consisting of the soil the marmot has dug up. In summertime, when there are no enemies about, groups of marmots often revel on these hillocks. They go visiting their neighbours, whistle cheerfully to each other, play games and engage in mock battles. All the time, however, they keep a keen look-out for a wolf, fox or dog. Who knows, there could also be a hunter creeping up or an eagle preparing to swoop down on the young.

Marmots don't hear very well, but they have an excellent eyesight.

Their signal of danger is not only a whistle, more often one of them makes a precipitous dash into a burrow. Thus, the whole colony is immediately alerted and within seconds all take cover.

Menzbir marmots hibernate for seven months, from September to April. It hibernates for so long not because it is lazy but because it needs to economise on vital resources. During hibernation its metabolism, pulse and breathing slow down.

During summer months marmots store "provisions" for the winter — a layer of fat. This store of fat lasts them adequately through the winter. It is accumulated mainly on a vegetable diet. Marmots graze in a special way. They do not bite off an entire plant, but only a part of it. They will bite the top of one, a leaf off another, and a stalk of a third. That is why marmots' pastures are always lush and the choice of plants is greatly varied. This is most important. The marmot eats more than a hundred different species of grasses. But it also eats locusts, molluscs and ants' eggs. In captivity marmots even eat meat and fat. They are easily tamed. They do not usually drink water.

Menzbir marmots are not very prolific. There are usually four in a litter. Moreover, less than half of the female population rear a family every year.

Hunting Menzbir marmots is forbidden in the USSR. The other sub-species, however, are not protected. And hunters cannot always tell the difference. So rare animals, included in the Red Data Book, also get killed. The obvious solution to this is to ban all hunting in the localities where they are found. There is no doubt this rare sub-species is in danger and needs effective help.

Dawns on Lake Seliger

One cannot speak of Seliger in an indifferent tone. The famous lake captivates everybody who visits it. It is even said that once you have taken a dip in Seliger you become a compulsive traveller.

I once overheard two anglers speaking in undertones as they watched their floats. The damp morning air amplified their voices.

"I take a holiday by the sea every year," one whispered. "But I don't really feel rested until I've spent at least a week on Seliger here."

"And we've been coming here for eight years running, children and all," the other answered. "We miss this beauty. There's so much to see! And what about the hikes!

After you've traipsed for a couple of dozen kilometres you feel as though you've been born anew. It's good for all ages."

Two days later, adjusting the heavy knapsack on my back, I recalled these words. Our group was following one of the most popular routes in Seliger country — to the source of the Volga. Forty-two people were walking in single file along a remote forest track — schoolchildren, college students, workers, collective farmers, teachers, engineers. The youngest was nine, the oldest, 65. For many it was their first hike, and they found it a hard going. If you are not used to it, a long hike is quite an ordeal. But you forget the hardships, while the impressions stay vivid in your memory, and so you go on hikes again and again.

In a small wooden hut at the edge of a marshy forest we saw the spring where the mighty Volga rises. And each one of us was grateful to have been given the privilege of seeing this wonder. Our fatigue vanished. We felt Old Russia around us, rustling with the leaves, tinkling with the brooks, sparkling under the sun.

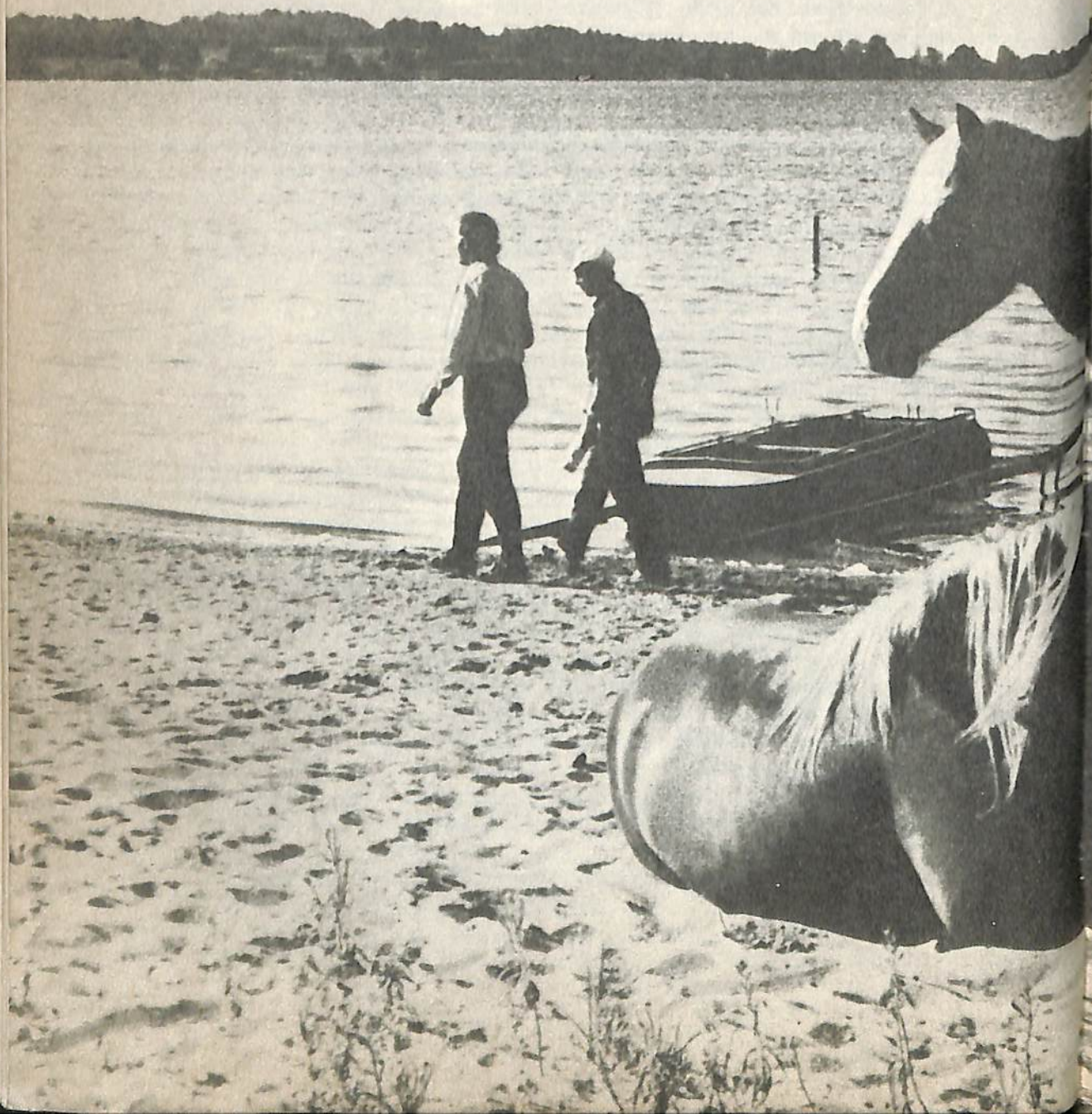
Not far from the hut we came to the first bridge across the Volga. I measured it: it was four paces long. Actually, it would've been an easy matter to jump across the river here. The idea bowls one over — fancy jumping over the Volga! I recalled the mammoth bridge in Saratov — 2,700 metres long. But this is the source of the river. There is a plaque nearby. I copied out the inscription on it: "Here, near the village of Volgoverkhovye begins the great Russian river Volga. Its first tributary is the stream Persyanka; in the course of 91 kilometres the Volga passes through the lakes Bolshoi and Maly Verkhit, Sterzh, Vselug, Peno and Volgo. The Volga is 3,690 kilometres long. The source is protected by the state."

The words stirred deep emotion in us.

Every year some 200,000-300,000 people spend their holiday on Lake Seliger, which has been declared a republican resort zone. The greatest share falls to July. People fly here on planes, come by train and bus, sail along the waterways.

In summer three colours dominate the scene — the white of the sails, the blue of the water and the sky reflected in it, and the green of the forests on the shores. A novice is amazed at the incongruity between the word "lake" and the phenomenon it denotes. The total water surface of Seliger is 250 square kilometres. It stretches from north to south for a hundred kilometres, and from west to east for more than 50. It is not a consistent water surface, but a whimsical labyrinth of open pools and narrow channels among 163 islands. The biggest island, Khachin, is 30 square kilometres. It has 13 inner lakes, and five villages. This island is the centre of hiking and sailing routes on the lake. Two long chains of pools cross here. Around are numerous large and small wooded lakes, rivers and streams, that surround Lake Seliger. Eighty rivers flow into Seliger and only one flows out of it — the Selizharovka, the first big tributary of the Volga.

The locality is rich in historical sights and monuments that remind us of the distant

On the shore of Lake Seliger

past of the Seliger region and also of the feats of valour accomplished here by Soviet people during the war against Nazi Germany.

The Seliger region is entered through Ostashkov, a town with a population of only 25,000, standing on a peninsula. The spires of its ancient churches and the rows of one-storey houses are reflected in the water of the lake. There are jetties for ships and rowing boats. A town of fishermen and artisans Ostashkov boasts whole dynasties of carpenters, stone masons, fishermen, tanners, painters and seafarers. It is the birthplace of the mathematician Leonti Magnitsky, the author of the first Russian mathematics text-book. The great 18th-century scholar Mikhail Lomonosov[19] used this text-book. There are many historical sites in the town and its environs.

Today Ostashkov is called the capital of hikers. Three tents are depicted in the upper green half of its coat-of-arms, and three perch in the lower blue half, a symbol of the abundance of fish. The town is also the administrative centre of this agricultural district and the centre of the resort territory on Lake Seliger which overlaps into the neighbouring administrative districts. All the problems of the area are now in some way or other connected with the organisation of tourism, the main industry on Seliger, its main source of income and concern. For tourists fall into two categories: "roaming hikers" and "package" tourists with vouchers, who are accommodated in hiking bases of the Central Council of Tourism and Excursions. The most interesting of these bases is "Rassvet" ("Dawn") on Stolbny Island, in the grounds of a former monastery, now an architectural monument. At this base in return for his inexpensive voucher, the tourist is given a tent, a boat, sleeping-bags, pots and pans, foodstuffs, and allotted a place where he is allowed to pitch camp. This kind of tourist is free to choose his own route, regimen and pastimes.

But the most widespread figure on Lake Seliger is the "roaming hiker", who wanders freely, looking for remote beauty spots. This type of tourist has given rise to numerous problems. The most important of them are the protection of Seliger's unique nature, the rational organisation of rest and provision of reasonable amenities. The status of resort zone that the region has been granted ought to help in this respect. Water and forests are priceless treasures. They give generously of their riches — fish, berries, mushrooms. They offer you the joy of swimming and sailing, they help to improve your health. But they also have to be treated with care.

There was a tempestuous summer shower on the day we left. In the tram several young men in soaking wet tarpaulin jackets discussed the time they had had on the lake.

"If you want to catch fish, you mustn't be afraid of water," said one of them and kicked a full sack. "See? A sackful of dried perch. All caught and dried in a couple of weeks. I'll be coming again next year, that's for sure!"

It is splendid when people come back from their holiday in high spirits but this sackful of fish strikes an ominous note. However, I believe that the outlook for Lake Seliger, this "gem of Valdai" (Valdai is the north-western part of the Russian plain), is hopeful. I would like to think that we shall be able to protect its riches and pass them down to our descendants.

The Striped Digger

People don't often see this animal. In winter it hibernates, and in summer it goes hunting at a time when people go to bed. That is why so many improbable tales are told about the badger. It is, however, not so very difficult to see this animal if you know where the burrow is and if you stand near it on the lee side and wait quietly for a while.

Once I came face to face with a badge completely by chance.

At sunset, in a forest near Yaroslavl, I was standing and waiting for woodcocks to fly over. Naturally I was straining my ears and peering at the greying sky. At any moment the long-awaited guttural call of the woodcock would ring out and its silhouette would flash among the tree-tops.

Meanwhile there were some strange noises coming from the forest floor, some kind of scuffling and fidgeting. Not very loud sounds, but definitely coming my way. I tore my eyes from the alluring sky and looked ahead, at a glade where the rustling was coming from. I caught sight of a stealthy movement in thick brushwood. It came nearer... And suddenly a squat clumsy beast rolled out into the glade some ten steps from me. It had a rough grey coat, a white patch on its forehead and two black stripes on its smallish pointed face with short-sighted eyes. It was turning its head right and left and sniffing the ground carefully. A badger! The wind was blowing my way, and the animal could not catch my scent. Its eyesight is not very good, the result of living underground, but its sense of smell and hearing are excellent. Despite its short-sightedness it catches any movement in the wood at once. No sooner had I turned my head, than the animal vanished from sight. A faint rustle, and a grey shadow melted into the darkening wood. And above, as if to punish me for lack of attention, a woodcock flew past crying hoarsely.

On the way home I remembered seeing some badgers' burrows nearby but I had thought they had been abandoned. Now I knew they had not. The badger had spent the winter sleeping and was now out to make up for lost time.

This animal belongs to the family of *Mustelidae*, the same as the sable, the marten, the ermine and the kolinsky, but it is very unlike them, both in appearance and habits.

Badgers are fairly widespread in European Russia, Siberia, Central Asia and the Far East. The badger is a wood dweller, though it is also found in the mountains and even deserts. Fully-grown, it is up to 90 centimetres long, has 24-centimetre tail and weighs up to 24 kilos. Its body is conical in shape, and it has strong short legs with long claws. The badger is a competent digger. It digs vast many-tiered burrows with several exits. Like all its kinsmen, it is a loner. It builds its house in remote parts of the forest, nearer to water. It is neat and hard-working animal. Its burrow is always perfectly tidy. It has to be for the badger spends most of its life underground.

The badger hunts at night. It does not need very much food, no more than half a kilo a day, but it likes variety. It hunts small animals, lizards, birds, destroying their nests in the process, enjoys insects and worms, eats grass, nuts, berries, and does not scorn carrion. It is very partial to frogs. In one hunting session it may catch

as many as 50 frogs. It has a very good appetite, and gets extremely fat by autumn. It needs the fat to keep alive during its long winter sleep. The badger does not actually hibernate, it sleeps. It may wake up in the middle of winter and even go out for a short walk by its burrow. In warm countries badgers do not sleep through the winter at all. In northern latitudes badgers usually lie down to sleep in October or November. They wake up, very much thinner, in March or April and go hunting at once, having worked up a great appetite.

Badgers give birth once a year, but at different times — either in December-January or in March-April, and correspondingly, they have their mating season either in summer or in winter.

The litter may consist of up to six cubs. Their eyes do not open until they are 35-40 days old. The mother badgers are very strict. Young badgers are playful and have to be watched every minute of the day. Their games are a joy to watch. They chase each other, tumble in great heaps, fight and wrestle. This is a kind of schooling which prepares young badgers for the hard struggle to survive. The badger is an intelligent and nimble hunter. It also defends itself with great courage and tenacity. A dog on its own usually fails to get the better of a badger and runs the risk of serious injuries. Sometimes a badger even manages to beat off a pack of dogs.

When taken from their parents at an early age, young badgers become quite tame and are easily trained.

The badger has always been hunted for its medicinal fat and tasty meat. Its rough coat is not so bad either. Hunting badgers by their burrows with packs of dogs has been so effective that their numbers have been greatly depleted. Now badgers need protection. They are very useful in the forest, and the good they do far outweighs any harm they may cause.

The Desman

The desman is a relic, a living fossil, a creature which has come down to us from pre-historic times. Zoologists are of the opinion that the desman has been living on Earth as a biological species for at least 30,000,000 years. It is even difficult to grasp such a span of time. Today the desman is fairly rare, but not so long ago it was quite widespread in Europe. Today there are two sub-species of the desman — the Pyrenean desman and the Russian desman. There are dangerously few of both, and both have been included in the Red Data Book.

The Pyrenean desman is slightly larger than a mouse. It lives in mountain springs of the Pyrenean Range in Spain and in south-western France. The Russian desman is much larger: it weighs up to 520 grams and reaches the length of 22 centimetres. It has survived only in the basins of the Volga, Don and Ural. In recent years, though, fairly successful attempts have been made to resettle it in other regions too.

Not many people have seen a live desman. At a casual glance it does not look very attractive. Beady short-sighted eyes. A strange longish head without external

ears and a long trunk-like snout. A streamlined body on clumsy webbed paws. Its long laterally flat tail is covered with horny scales. On its upper ridge there is a kind of keel with long and thick hairs. The animal looks like a cross between a mole and a rat.

Nonetheless, true nature-lovers regard the desman as a very pleasant little beast. And they are right. This small animal, which looks like a funny tiny water elephant, is very docile. Its thick, soft and even fur is amazingly beautiful and strong. It has a brown and a silver-white belly. Curiously, the belly fur is even thicker than elsewhere. A water dweller needs its belly to be well protected from the cold, even more so than its back or sides.

The structure of the desman's hair is very interesting. The rough ground hair are finer at the root and thicker at the end. In this way they wedge together above and form a thick layer which is, what's more, smeared with grease and so impervious to water. As a result, the desman takes a considerable amount of air in its coat. This makes swimming easier and keeps it warm. The air is gradually released and goes up in bubbles, showing the direction the animal is swimming in. If you sight such a "track" and sit very quietly in a boat, you may see a desman surfacing.

The desman is an insect-eater. Its favourite foods are water beetles, snails, dragonfly, and mosquito larvae, and leeches. It also eats frogs, crayfish and even small fishes. The desman usually hunts at dusk and at night. With its long nose it furrows the river bottom supporting itself by its forepaws. At such moments its body is suspended in the water, tail up. The desman can stay underwater without breathing for as long as 8 minutes, but usually does so for 4 to 5 minutes. In order to take a breath, it only needs to poke out the very tip of its long nose, and so it is practically impossible to notice it. Incidentally, the animal can also eat underwater without the risk of breathing in water. It has special muscles in its palate and gullet which close the windpipe.

Its warm fur, which protects it from the cold, may prove fatal in hot weather. How does the desman avoid overheating? Here its scaly tail comes to its aid. It has the double function of a rudder and heat emitter. Incidentally, at its base there is a thickening where musk glands are located. They secrete an oily pungent-smelling musk. The animals use it to mark their territory, to trace each other and scare off enemies. When there are many desmans in a reservoir the water smells so strongly of them that cattle refuse to drink it. Predatory beasts do not eat desmans because of their smell, but they kill them on occasion. The desman's most serious enemy today is the musk-rat. Spreading to ever-new territories musk-rats, who are the stronger of the two and more aggressive, drive desmans out and occupy their burrows.

Because of its secluded way of life, the desman has still kept many of its secrets from man. It is not clear why it prefers floodwater reservoirs — old river beds, pools and slow rivers, and does not live in lakes or steppe ponds. Nor have zoologists been able to establish how many litters the desman has in a year. Their young may be seen at all seasons.

In a word, the desman is largely an enigma. Zoologists are studying this living fossil. In the Khopyor wild nature preserve desmans are protected and resettled to

other water reservoirs, and some are even kept in cages. A special diet has been evolved for them. Possibilities of breeding desmans in captivity are being investigated.

Not that there is much hope of increasing the number of desmans to any appreciable degree or of resettling them in large areas. The desman is too particular in its choice of habitation. But man ought to be able to preserve the animal and to make a better study of it.

The Wild Boar

The wild boar is an animal which certainly deserves to be treated with respect. Its life is grim and fraught with dangers. Not many boars live their full life-span of 12 years. Most often the boars die prematurely either through lack of food in a cold snowy winter, or from a disease, predator's attack or a hunter's bullet.

Nonetheless, wild boars are still quite numerous. Sometimes their numbers decrease catastrophically in one region or another, but then they pick up again. Of course, to a great extent the wild boar's fate lies in man's hands. His economic acumen largely decides whether the boar herds will grow or shrink. Boars are very hardy and well-adapted to life in the most different conditions. They are found in the mountains at altitudes of up to 4,000 metres, in the taiga, in marshes, in reed undergrowth in tropical forests and even in deserts.

I have often seen and photographed wild boars in the woods of central Russia, in the mountains of the Caucasus and Kirghizia. I have had a chance to practically hand-feed wild boars in the Belovezhskaya Puscha preserve[20] where they have grown quite trustful of man. However, I must admit my first encounter with a wild boar was quite a frightening experience.

One morning I was sitting in a covert waiting for black-cocks to come and feed in the young rye. The dew was heavy that morning and a thin whitish mist swaddled the earth. Day had already broken, but my eyelids, still heavy from sleep, kept closing.

Suddenly a rapid pounding of feet made me start. A huge dark mass emerged from the mist and froze on the road some twenty paces from me. A wild boar! I felt a chill running down my spine.

The beast stood sideways to me, and I could see it in detail. The alert boar seemed to be an embodiment of brutality. The fur stood on end on its powerful withers, its small eyes were bloodshot, its long white tusks glinted fearsomely. The sight was enough to terrify the bravest man. But as soon as I stirred, the boar uttered a hollow grunt and melted into the mist. Later I had many occasions to become convinced that wild boars are afraid of men and avoid meetings with them. They present no danger for mushroom- or berry-pickers. One only has to whistle, or better still, clang some metal object, for the fearsome beast to run off as fast as a hare. For some reason wild boars are terribly afraid of all metallic noises. But one has, however, to be extre-

mely cautious when dealing with a wounded boar, for once enraged, the beast will not even be frightened off with a gun-shot.

Nature has endowed the boar with great strength, stamina and simple tastes. At critical moments the boar exhibits great courage and will hold its own against a wolf, a bear or even a tiger. As often as not, it emerges the winner from such confrontations. But of course that only applies to the male, a huge beast weighing up to 270 kilos.

The sows weigh from 60 to 150 kilos. The herd can be divided into three categories — adults, two-year olds and piglets born in the current year. The striped piglets are easily distinguishable. Not so are two-year olds. Altogether there are 25 sub-species of wild boars. They are all very much alike and usually differ only in colouring and size.

Wild boars live in almost all Western Europe. They are not found only in Scandinavia and Great Britain. They are widespread in Asia and North Africa. At the beginning of this century (1909-1924) they were acclimatised in North and Central America and in Argentina.

The wild boar population began to decrease in Russia in the 17th-18th centuries. By the '30s of this century the area inhabited by boars had reached its lowest mark ever.

The expansion of the wild boars' numbers and invasion of new territories, which began in mid-forties in European Russia came as somewhat of an explosion. Today the wild boar has spread over the vast territory of 186 million hectares, which encompasses 36 regions and autonomous republics. This phenomenon has not yet been fully explained by biologists. Of course, there were the contributory factors of protection, restricted hunting, re-settlement, feeding in winter. But it is believed that the milder climate of recent decades has been a most crucial factor. The northern border of the wild boar territory now lies in the Leningrad Region. Some herds even wander into Karelian Isthmus. Lone boars have even been seen still further to the north, in the Archangelsk Region. In Russia we distinguish five sub-species of the wild boar, differing only in colour and size.

Now that thousands of wild boars live in our forests, woods and marshes, biologists and hunting experts have set to wondering about their positive and negative effects. In this aspect the wild boar is a highly unusual animal.

It is omnivorous, but concentrates on vegetables.

The main items on the wild boar's diet are roots, tubers, bulbs, fruit, nuts, grasses, twigs, bark, sprouts; it also eats worms, insects, lizards, frogs, rodents, fish, carrion.

Its characteristic way of obtaining food is by digging. The boar's muzzle, tusks and jaws are ideally suited for this. Depending on their numbers in an area, the boars may either do good to the woods and meadows or be extremely harmful. In a day a wild boar needs from 3 to 5 kilos of food. To obtain it, it ploughs up some 8 square metres of wood glades. Even in the richest areas the number of wild boars must not exceed 15 heads per thousand hectares. In the belt of intensive agriculture in Central Russia proportion must be even less, not more than 6 heads per thousand hectares.

Usually the herds keep to a relatively small area where they feed and rest. In summer

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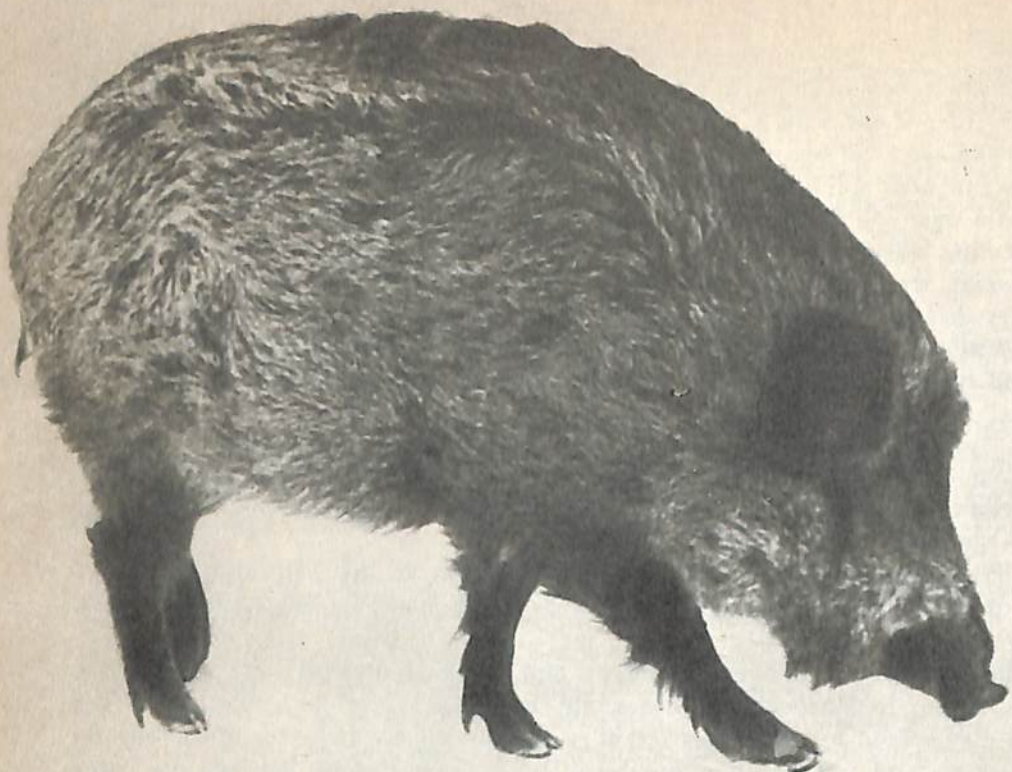
A wild boar...

the boars lie on the earth. In winter they make a warm bed, in places sheltered from the wind.

Wild boars live in herds. Only old males or a sow with young piglets roam on their own. The leader of a herd is usually a strong and old sow. The hogs join the herd during the mating season in November-January. Then there is fierce competition between them. The big mature hogs drive their young rivals out of the herd. Those of equal strength stage ferocious fights. Curiously, before the mating season starts, in August and September, something like chainmail composed of fibrous tissue forms under the males' skin on the sides. It serves to protect the body of the fighter from lethal thrusts. This fibrous armour is so hard that bullets from old guns used to flatten against it. Of course, a bullet from a modern rifle pierces the armour. In the tournaments the skin on the sides of the males becomes scarred all over. Even so, thanks to their protective armour few animals die.

The sow has a litter some 130 days after mating. It consists of 4-6 piglets. Sometimes there are more, in rare cases as many as 12. Piglets are born between March and May. They have stripes and weigh from 600 grams to 1.5 kilos. During the

and a sow

This striped piglet is only six hours old

first week of their life they never leave the nest, which is usually well hidden and has a roof and walls of branches and grass. The mother nurses her young every 3-4 hours. At the age of two weeks the piglets already know how to hide, and their stripes are a good camouflage. Two- or three-week-old piglets begin to eat vegetable food and learn to plough up the earth in search of roots and the like. The mother goes on nursing them until they are about three and a half months old. Sometimes boars mate with domestic pigs, and then the latter bear a litter of striped piglets.

Wild boars are most active at dusk. They prefer to graze at night, but they visit the places where food has been left out for them by men even in daytime.

Young boars are easily tamed and not afraid of people. They accept food from human hands and wander round inhabited dwellings. In preserves and forestries you can often see adult boars who have got used to receiving food near people's houses, and approach the troughs in full view of people, betraying no fear at all.

In snowy winters wild boars need man's help because they are unable to get at the grass and roots under the deep layer of snow. At this time they fall easy prey to wolves, lynxes and stray dogs.

The wild boar population must be regulated. Where there are too many animals, hunting must curb their number. Where there are not enough, wild boars must be protected, resettled and fed.

Sharik, Bim and Rex

A dog is a man's best friend. In recent years some have begun to question this maxim. Is it always true? Can it be said of any dog?

But let us formulate the question differently. What about man? Is he always a dog's friend? Can it be said of any man?

I am sure the first version of the question will be heatedly disputed by passionate dog-lovers: how can one doubt a fact which has been tested by time? Of course a dog is man's faithful friend!

And the second version is bound to be resented by people who are indifferent to dogs.

"How can you humiliate man so? After all, it does not matter what a man is for a dog — it's the other way round that counts. And, generally, isn't this 'dog problem' given too much prominence?"

" 'The dog problem?' " repeated an old veterinary surgeon who had made a study of animal diseases, and dogs' diseases in particular. "You see," he said meditatively, "the problem has never existed. Just as there has never been a horse, cow or sheep problem. They are all to do with people. We create these problems ourselves, and it is up to us to solve them. The dog has nothing to do with it. It's in no way to blame."

"Is man to blame then?"

"That's risky question," the vet responded. "Very risky. Now if you mentioned Steller's cows instead of dogs, then we could say, stretching the point a bit, that man

is to blame for its disappearance from the face of earth. But, I repeat, we would be stretching the point even there. Because by destroying the sea cow he has done harm, first and foremost, to himself. He could have long had farms of sea cows, and Steller's cow could have been the first domesticated sea animal. Have you noticed that we never like to admit our guilt, especially in respect of our 'lesser brothers'. That's how it is. Incidentally, have you dogs?"

"Yes."

"Since when?"

"Since my childhood."

"Pedigrees?"

"All kinds."

Indeed, as far back as I can remember, there have always been dogs in our house. Some were kept in the yard, some in the flat, depending on where we lived, in the village or the town, and what breed the particular dog was. Each of these creatures left a memory of itself. Some of these memories are happy, some sad. The sadness comes, as a rule, from the premature loss of a four-legged friend through an illness or accident, or from having been forced to give it away for various reasons.

I was three when my parents moved from Orel and left our yard dog Pirate to the care of our neighbours. Pirate is the first dog I remember. It belonged to my elder brother. And although we were all very fond of it, Pirate showed a marked partiality for the youngest member of the family — me.

Several years later my brother entered Orel with our army. The city had just been liberated from the Nazis and lay in ruins. At the first opportunity my brother sought out the house in which our family had lived before the war: he wanted to look up our neighbours and help them if he could. And what do you think? In a street he ran into our neighbour, a middle-aged woman, and Pirate. My brother spoke to her and explained who he was. The woman gasped and started weeping. The dog, his muzzle grey from age, at first shrank back and growled at my brother, and then whined like a puppy, wagged its tail, joyfully rushed at my brother and started licking his hands.

"He's recognised me," my brother kept repeating, struggling to swallow the dry lump that had stuck in his throat.

His iron rations were transferred there and then from his knapsack into the pockets of the neighbour's old coat.

"The children will be so glad," she said happily. There was also a tasty morsel for Pirate.

A crowd of adults and children came out into the street to see the soldier off, along with Pirate, the only dog that survived in that street.

The people waved and spoke all together, some cried, and Pirate sat in the middle of the dusty road sadly watching his former master disappear. That was their last meeting.

The three dog names in the title have not been chosen fortuitously. Sharik is the traditional name for a mongrel in Russia. Bim, after the publication of Grigory

Troyepolsky's wonderful story "A White Gordon with Black Ear", has become the symbol of a noble hunting dog, while Rex was the name of the dog in the film about frontier guards known to all Soviet children, and symbolises a service dog.

Everyone has had something to do with dogs. And the nature of this relationship determines a person's attitude to Shariks, Bims and Rexes, no matter what their names are.

This attitude depends not on the dog's name, breed, points or colour of its coat, but on whether this dog is needed by a person. Some people do not need dogs at all. But other people do not like, say, ice hockey or football. Some people are afraid of dogs while others fear airplanes, heights, darkness, screaming sirens, and so on.

Some people do not feel their house is complete without a domestic animal, and believe their children would be robbed of a great source of joy if they did not have one.

I grew up in a suburban settlement near Moscow, next door to the Central Army School of Service Dog Training. I remember the columns of soldiers with formidable dogs on leashes who used to march past our house on certain days. They were always followed by a throng of children, who said knowledgeably:

"They're taking them to the baths. A dog likes to be clean."

It seemed such an ordinary and peaceful procedure — taking dogs to the baths.

We had no way of knowing then that very soon these young lads with close-cropped heads, who were leading their dogs on leashes, were to be plunged into a life-and-death struggle against the invading Nazis. One of them would destroy, with the help of specially trained dogs, 9 Nazi tanks, which is paramount to beating off, single-handed, a concerted tank attack. Yes, dogs blew up tanks. Most efficiently, too. It was a complete surprise for the Nazis. Already in February 1942 they issued special instructions for fighting tank-destroyer dogs. It is impossible to calculate how many human lives were saved by such dogs. They served in communications, in field nursing, in reconnaissance (helping to catch prisoners alive). They guarded storehouses, helped to derail enemy trains, searched for mines. In 1944 there were 60,000 service dogs registered in the Soviet army. In the entire history of human wars, this is the only case of such a wide use of service dogs. And they needed to be trained — so there were war dog-trainers, adding their own contribution to the victory. Here are the official figures: during the Second World War service dogs blew up 300 (!) enemy tanks, discovered 4 million mines and, consequently, helped people to render them harmless, carried 680,000 wounded men from the battle-fields, brought 3,500 tons of supplies, including ammunition, to the front line; communications dogs unwound nearly 8,000 kilometres of telephone wiring.

After the war we schoolchildren often went to visit military dog-trainers. We gave them amateur concerts, and they, for their part, took us round the kennels and showed us the work of trained dogs. After that you could often hear us shouting out in our back-yards: "Blackie, sit!" "Rover, fetch!" "Spot, crawl!"

We used to pronounce the name of the commander of this unorthodox unit with reverence: "Major-General Medvedev has come..." "Major-General Medvedev has ordered..." "Major-General Medvedev has decided..."

Of course, I never dreamed in those far-off days that my own son would one day serve in this unit, and that I would go to visit him, not to my native settlement, but to another town in the Moscow Region. That I would make the aquaintance of Major-General Grigory Panteleimonovich Medvedev, and he would give me an inter-

Mongrels

view. The General was past eighty, but he was still working in his unit, passing his vast experience on to the young.

I asked him, among other things:

"Grigory Panteleimonovich, what do you think about keeping dogs in city flats?"

The General gave me a piercing look, paused for a moment, and then said, "In principle I approve of it. But on one condition. Any dog, big or small, of any breed, must do some work. That means its master must work with it. Must train it.

Then the life of the dog will be "meaningful". The master will take more interest in it. It is particularly important that the dog should undergo the general training course. In other words, that it should learn obedience and the principal commands without which it may cause trouble at home or in the street. But a well-trained dog is a great asset."

A friend of mine, after listening to a recording of my talk with General Medvedev said, "Only the things to which a certain value is attached are regarded by people as assets. We tend to forget that the breeds of domestic animals developed by man over the ages are priceless treasures. Take horses, for instance. In discovering new lands, agriculture, transport, commerce and war — everywhere horses have served man faithfully. However urbanised we become, the horse will still always be needed by man. The same applies to the dog. After all, it was the first animal to be domesticated by man."

"Why are you getting so worked up about it?" I asked. "I agree with you entirely." "So you should," my friend said, getting even more worked up. "People have developed four hundred breeds of dogs. Four hundred!"

"There are more than that now," I said.

"That only proves my point. It means people need these dogs. From toy-terriers to Great Danes. To hear people, who regard themselves as intellectuals, say: 'Dogs should not live in cities, and should not be allowed in city flats. Their place is in villages, in kennels.' Do they expect a Great Dane, a Doberman pinscher, a setter or a spaniel to live on a chain?"

"I don't think things will go that far," I said reassuringly.

"Are you sure?" he asked with a smile.

"Yes, I am." And I told him of a telephone call I had recently had from Bulgaria. My friends asked me to find out whether there were any specimens in our country of a rare dog breed, which they called "a short-haired Arabian hound", and whether it was possible to buy such a dog. My kinologist (dog specialist) friends just shrugged their shoulders in response to my inquiries, saying they had never heard of this wonder-breed.

"So then what?" asked my friend.

"So nothing. Simply I think that as long as there are people interested in 'short-haired Arabian hounds' dogs will not become extinct, either in the town or country."

It is true, now we hold many more exhibitions of service, hunting and house dogs, there are more dog clubs and they work better. The veterinary service in the cities pays more attention to small animals. The problem of city pets is discussed in newspapers and journals, on the TV and radio.

Editorial offices receive scores of letters about animals — with inquiries, requests, demands and complaints. Here are some typical excerpts:

"Where can I buy a mittelschnauzer puppy?" "Please advise me urgently about the diet of the midget poodle." "I demand that your paper should not offer its pages to such-and-such" (the name of a well-known journalist is given, who dared to mention some negative aspects of the "dog problem"). "Please help me persuade my parents to buy me a puppy. I am in the third form and want to rear a boxer..."

...Every day my son and I take turns to walk our riesenschnauzer Vesta (a service breed, like the mittelschnauzer) in a large wooded park. My son brought that dog from the army where he received the rating of a military dog-trainer. Vesta is young and only just mastering the general training course. The trainer of the service dog club, where my son takes her every Sunday, says that Vesta is a "gifted" pupil. In the same group with her "work" collies, Alsatians, Doberman pinschers, boxers, cocker spaniels and mongrels brought to be trained by adults and children.

With the militia's and forestry authorities' permission, dog-owners of our neighbourhood have fitted out a training ground at the edge of the wood. More than twenty people bring their dogs here to walk and to train. We take the dogs through their paces, help young dog-owners, exchange information on feeding, keeping, and treating dog illnesses. Here you can learn about the latest kinological publications, argue about the advantages of one or another breed, and, most importantly, watch how the dogs and people behave and relate to one another.

"Now, why should Ingul dislike Harris so much?"

"Have you noticed — Gerda only barks at people who are afraid of dogs?"

"It's because she smells fear."

"How can that be?"

"Don't you know that when a person takes fright, adrenalin is discharged into his blood. It may have only a barely perceptible smell, but dogs can pick it up, and for them it is the same as the sight of a running man."

"You don't say!"

"I assure you it is. It has been proved by science!"

"How strange dog-haters are. They simply must say something nasty about your dog."

"Come here, boy! I don't think I've seen you here before. They only bought you this puppy a few days ago? Your first dog? I see. Well, let's walk our dogs together. Don't be afraid, my Inga will never harm your Jerry. How you should start raising a dog? Start with love, and patience. So your mother's going to see to Jerry's meals? That's good. And you are going to train him? Excellent! The first command he must be taught is 'Here!' The dog must run to its master willingly and promptly. Every time give it some 'reward'. A bit of bread, cheese or a biscuit. And remember — never beat your dog, either with your hand or with a leash. A dog must love its master's hand and leash and not fear them."

"How shall I punish him then?"

"Best of all, by the tone of your voice. A sharp rebuke is enough punishment for a dog. Join the club and bring your dog to the training ground regularly. Read some special books. If you are stumped about something, call me up. Here's my telephone number."

"Look at those two little girls — how patient they are in training their dogs! A fine show!"

"And this boy, Sasha, has no dog, but he comes here every day. He's not afraid of the dogs, he knows them all by name. His parents can't make up their minds about buying

him one. Anyway, I am sure he will have a dog when he grows up. And he'll be an excellent master."

"Have you heard that story about the Great Dane?"

"No."

"Well, it's quite a story. The dog had done a course in guard service. Then his master took him for a walk one evening. Three hooligans attacked him and beat him up."

"What, and the trained dog did nothing to defend his master?"

"That's the point. The dog jumped on one of the hooligans when his master commanded him to but he just snatched the hat off his head, ran aside and began tearing it to bits. And the hooligans gave his master a good drubbing and walked off. Now the young man is asking what he ought to do with the dog."

"A fine question! He must work on him. Train him properly!"

Today there are more than 500 training grounds of the DOSAAF* clubs of service dog training and breeding, where regular sessions are held in the general training course and guard service.

Few people know of the new type of athletic competitions being held in the Soviet Union — the summer and winter dog pentathlon.

All-Union competitions in summer pentathlon have been held here since 1972.

Service dog clubs have already trained nearly 400 Masters of Sports and candidate Masters of Sports of the USSR, and more than 1,500 sportsmen with different ratings. The clubs employ some 200 staff trainers and more than a thousand volunteer trainers who work with the pentathlon competitors.

As a rule, young men who have done a special course in dog-training during their army service or at a sports club, go on training dogs for many more years and willingly share their experience with beginners.

At summer dog pentathlon competitions I made the aquaintance of two sportsmen. One of them, candidate Master of Sports Alexander Serpikov, had served in the Central Army School of Service Dog-Training. He had trained dogs before his call-up too. His very first dog was a mongrel called Dinka.

"She was an amazing dog," Serpikov told me. "She caught all the mice in the vicinity, and was good at catching fish, too. She could smell out mushrooms, tore apples off trees and ate them, and in general was remarkably intelligent. One day I went fishing with my younger brother. I was then about ten years old. Dinka had moved some distance upstream, and soon returned with a crucian in her teeth. We took it away from her and put it into our water jug. The dog caught another fish. We did the same. In a word we came home with a dozen crucian carp caught by Dinka. We were praised, and the carp were placed in a tub of water that stood by the porch. Mother promised to make us fish soup of them the next day.

"But we never had it. Dinka fished all the crucians out of the tub and ate them. And it was only fair — after all, they were her catch.

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* Abbreviation for Voluntary Society for Assistance to Army, Air Force and Navy.— *Tr.*

"Friendship with dogs has taught me to be observant. In training a dog, it is very important to discover the individual traits of each animal and then find the right approach to it. You must know definitely where a pat on the head or a kind word are best, and where you have to be strict. Sometimes you must give way, and sometimes stand firm.

"Every sport strengthens your health and will power. And work with animals has developed in me self-control and, strange as it may sound, a sense of humour. I am sure that a trainer must be kind and good-natured."

Another young dog-trainer, Anatoly Kanavchenko who also had a rating in the summer pentathlon, expressed the opinion that this sport, besides everything else, developed a love for natural sciences, for one wanted to find out as much as possible about one's charges. And also, of course, this sport develops industry and initiative. Training animals is a hard work. But if you love it, you never mind feeling tired.

Many competitors told me that they were going to take up dog training professionally. There is a great need for instructors in service dog-training.

I have heard this said very often at the most different gatherings: at agricultural conferences, during meetings with militiamen, and at DOSAAF clubs.

Today dogs are widely used in many spheres of the national economy. They are not only reliable guards and good hunters. There are dogs which help geologists (trained to find specific minerals). There are life-guard dogs in the mountains. This is a very important kind of service. Dogs are very good at finding people who have been covered by an avalanche. Whereas mountain-climbers and guards may take several days, dog-guards find avalanche victims in a matter of hours. This kind of service is now being expanded. Four-legged life-guards are even dropped by parachute from helicopters.

And what about shepherd dogs? It is even hard to calculate the economic effect of their work, or the help they give to shepherds.

Yuri Nikolayevich Pilschikov's thesis for the academic degree of Candidate of Agricultural Science concerned methods of training sheep-dogs. This has been the only thesis on the subject of agricultural dog-training defended in this country.

At present there are breeding kennels of sheep-dogs in the Stavropol Region, Kazakhstan and Kirghizia.

There are also breeding kennels of hunting dogs, where pedigree hounds, pointers, borzois and laikas are bred and trained. There are training schools for guide-dogs for the blind.

This is all well and good but is there or isn't there a dog problem which needs to be solved? Do dogs always help people? Aren't they sometimes a nuisance?

I think the time has come to say emphatically once again — all urban dog problems, such as barking in flats, frightening elderly people, young children and joggers — are to be blamed not on dogs but on us people. And the offending parties have to be penalized for disturbing law and order.

Is there hooliganism in the cities? Yes. And it has to be fought. Does the blaring music at young people's parties interfere with people's rest? Yes. And it has to be controlled. The same applies to dog-owners in cities. They have to abide by the

rules (taking the dogs into streets on a leash and in a muzzle).

I think a city without animals, including dogs, is as ghastly a phenomenon as a person who loves animals but hates people.

Dogs are needed by many people. Today educationalists are arguing that animals contribute to the upbringing of children, and doctors say that dogs relieve city-dwellers of stresses, induce them to spend more time out of doors, help to restore capacity for work, etc.

After all, our aim is to make people's life better. Then let the fans enjoy ice hockey matches, let middle-aged athletes jog to their heart's content, and let boys come to the training grounds with their dogs, never mind the breed, and work hard to teach them to obey commands.

Woods in the Steppe

June. The steppe of the Southern Ukraine. Scorching heat. Grey waves of feather-grass roll away towards the horizon. A wild expanse dotted with burial mounds and stone images erected by nomads in the early centuries of this millennium.

In your mind's eye you see an ancient horde: shaggy-legged horses, black-haired riders with prominent cheekbones, carrying spears, swords, quivers with arrows. This steppe saw them many centuries ago.

The sun parches the lips and causes unbearable thirst. The air, infused with the bitter smell of wormwood, is heated to 40°C.

And a person from mild Central Russia cannot help thinking however people could live here when there was nothing but endless steppe all around. Today there are green trees rustling in the wind nearby, brooks gurgling beneath them, and ponds cooling the air. In the centre of the scorching-hot feather-grass steppe you hear the cries of pheasants, and see ducks diving in the ponds and rosy flamingos strutting about in the shallows. The leafy crowns of mighty trees give shelter from the sun.

Beyond the parks and ponds lies a modern town, its houses nestling in greenery. There are apartment blocks, sparkling shop windows and the white building of the Research Institute of Animal Husbandry of Steppe Regions of the Ukrainian SSR.

This is Askania-Nova, the famous steppe preserve, variously described by delighted visitors as the miracle of Kherson Steppe, a zoological Mecca and simply a wonderful oasis. Askania-Nova owes its world-wide fame mainly to its wonderful zoo. It consists of two parts: the park with woods and ponds and the steppe with vast enclosures, some hundreds of hectares large.

The Askania zoo is very special. Most of the animals here live in conditions of near freedom. Herds of zebras, Przhevalsky horses, bison, antelopes and ostriches graze freely in the steppe. Wild geese and ducks sometimes circle over the ponds in the mornings. Peacocks and pheasants roam freely in the park.

But it is not only the exotic animals that amaze the visitor. The plant life here is also

unique. The steppe preserve is a monument to wild primeval nature. The huge leafy trees in the park are a tribute to human endeavour.

It is quite astonishing how people succeeded in growing this wood, which is so cool and fresh in the middle of the sun-baked steppe.

The Askania park was laid some 90 years ago on 70 acres of land. Today it has grown to six times this size. Its botanical collection numbers more than 200 species of trees and shrubs, many of nationally important kinds: quince, sea buckthorn, currants, etc. Growing in the shade of these trees are 270 species of grasses.

None of these plants used to grow here. The artificial ponds and irrigated woods created a wonderful micro-climate in the green oasis of Askania. Its beneficial influence is particularly noticeable in the hot season. Zoologists maintain that it is essential also for the acclimatisation. But, first and foremost, the Askania park proves that man can change the appearance of the hot steppe and grow woods in it.

Askania-Nova's botanists — and there is a special botanical laboratory here — conduct extensive work in acclimatising new plants from various regions of the planet. In the park they obtain precious seeds for multiplying the acclimatised species of plants. The park itself is an excellent example of land improvement and park landscaping in the southern zone. Experienced landscapers and artists have worked on it. The forest they have created looks natural. It consists of more than 60 sections, each with some 10 species of trees, including a section of coniferous forest, oak groves, glades and wooded steppe stretches.

There are many picturesque spots in the park: a stone grotto, a pond with an artificial island, a hill. This oasis in the steppe is attractive at any season. In summer it gives shelter from the heat, in winter it reminds you of the snowy Siberian taiga and serves as a barrier against piercing winds.

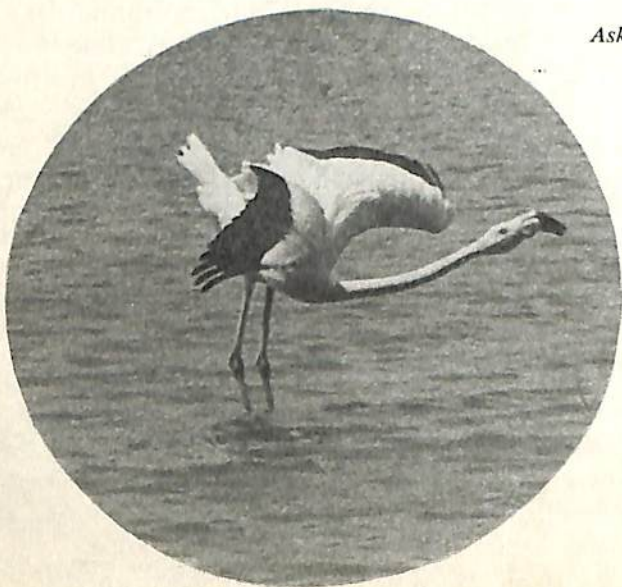
The park is especially captivating early in the morning. The rays of the rising sun filter through the oaks' and maples' dense foliage, slide down the white trunks of the birches and send mysterious sparks dancing through the fir-trees.

The wood is filled with the trilling of birds and mysterious rustles. Fish splash in the ponds. Squirrels dart about in the trees. You forget that you are in the steppe. But as soon as you emerge from the wood, you appreciate once again the human genius which created this green miracle in the primordial desert.

Storks

These large birds with red bills and legs, and black wing-feathers, which live in villages and towns, in close proximity to people, and build huge nests in trees or on roofs, are found in many countries and universally loved. However, their numbers have been diminishing in recent decades, arousing concern among biologists and nature-lovers. People have begun to protect, study and even count them. International censuses were taken in 1934, 1958 and 1974.

When storks were counted, mass observations were carried out of their way of

Pink flamingoes strut about in

Askania-Nova's shallow ponds

In the steppe round Askania-Nova zebras are as common as in African national parks

life, feeding habits, nesting preferences, and attempts were made to elucidate why storks had disappeared from their favourite haunts.

The last census noted that the number of storks in many districts of the Soviet Union had actually increased. There are some towns and villages which boast dozens of stork nests. For instance, schoolchildren in the village of Bubslobodka, the Cherkassy Region of the Ukraine, counted and observed over 50 nests. There were nearly 200 birds with their young in the villages.

An ostrich

Storks are handsome and very trusting birds. They destroy such agricultural pests as locusts, mice and other grain-eaters.

There are many legends about storks. According to one, storks hold courts of judgement over offenders of their own kind. It is alleged that when they join in flocks in the autumn, they kill off their brethren which have violated bird laws. The legend is rooted in fact. Storks really do sometimes kill old and sick birds. Of course, these killings are dictated by the eternal biological law of survival of the species and not by any "ethical" considerations. It is a method of preventing disease from spreading in the flock. The same instinct makes storks push weak or sick fledgelings out of their nests. And any attempts to return them to parental care would

be in vain. If you put the poor discarded fledgeling back into the nest, the parents will immediately throw it out again. Storks are ruthless in protecting the healthy fledgelings. Such is their hard law.

The healthy fledgelings are given all possible care. The parents bring them food and water, and on hot days even give them showers. The mother or father will bring a bill full of water and sprinkle them with it.

One cannot help feeling moved and exclaiming: "Just like people!" But the stork is only a bird, a bird with very interesting behaviour and habits.

There have been many stories about a stork taking vengeance on man for some offence or other. For instance, by bringing a smouldering cinder and placing it on a straw roof and thus burning the house down. Next time, the implication is, you'll think twice about harming a stork.

Well, such cases have happened. When gathering twigs for their nests, storks may pick up a smouldering twig from a campfire. And then not only the people but the stork as well lose their homes. Of course, the real blame lies with careless people. Storks do not know the meaning of vengeance.

But what they will do is fight fiercely to protect their nest.

In the same Bubslobodka a middle-aged peasant woman, watching me climbing a tree to photograph the fledgelings, told me what happened when a wicked person tried to take the eggs out of a stork's nest:

"They fell on the wretch and pecked one of his eyes out."

I don't know if this really happened. But the fact is that storks are strong and brave birds. And they can wield their heavy long bill to great effect.

One zoologist watched a stork attack an ermine, a nimble and fierce predator. The battle ended in the bird's victory. The stork killed the ermine by dealing it some accurate and fast blows with its bill and then swallowed it.

The storks are not song-birds, but they are not mute. They "talk" by clattering their mandibles, and there are many varieties of sound to express different things.

An invitation call to a female is different from a love "duet" or a threat to a stranger. And for every meaning there is a special posture.

Storks are expert gliders. So as not to waste muscular effort flapping wings, they will find a stream of warm air going up and let it take them high into the sky, where they soar for a long time. They are quite amazingly proficient at this.

That is why storks are so popular with glider-pilots. If a glider begins to lose height, the pilot looks about for a soaring stork and makes for it — there's sure to be a rising stream — warm air there. Very often storks and gliders can be seen in the sky together.

Storks have always lived side by side with people. But not all localities are to their liking. There may be a dozen nests in one village and not a single nest in the neighbouring one. So far nobody has come up with an answer to this puzzle

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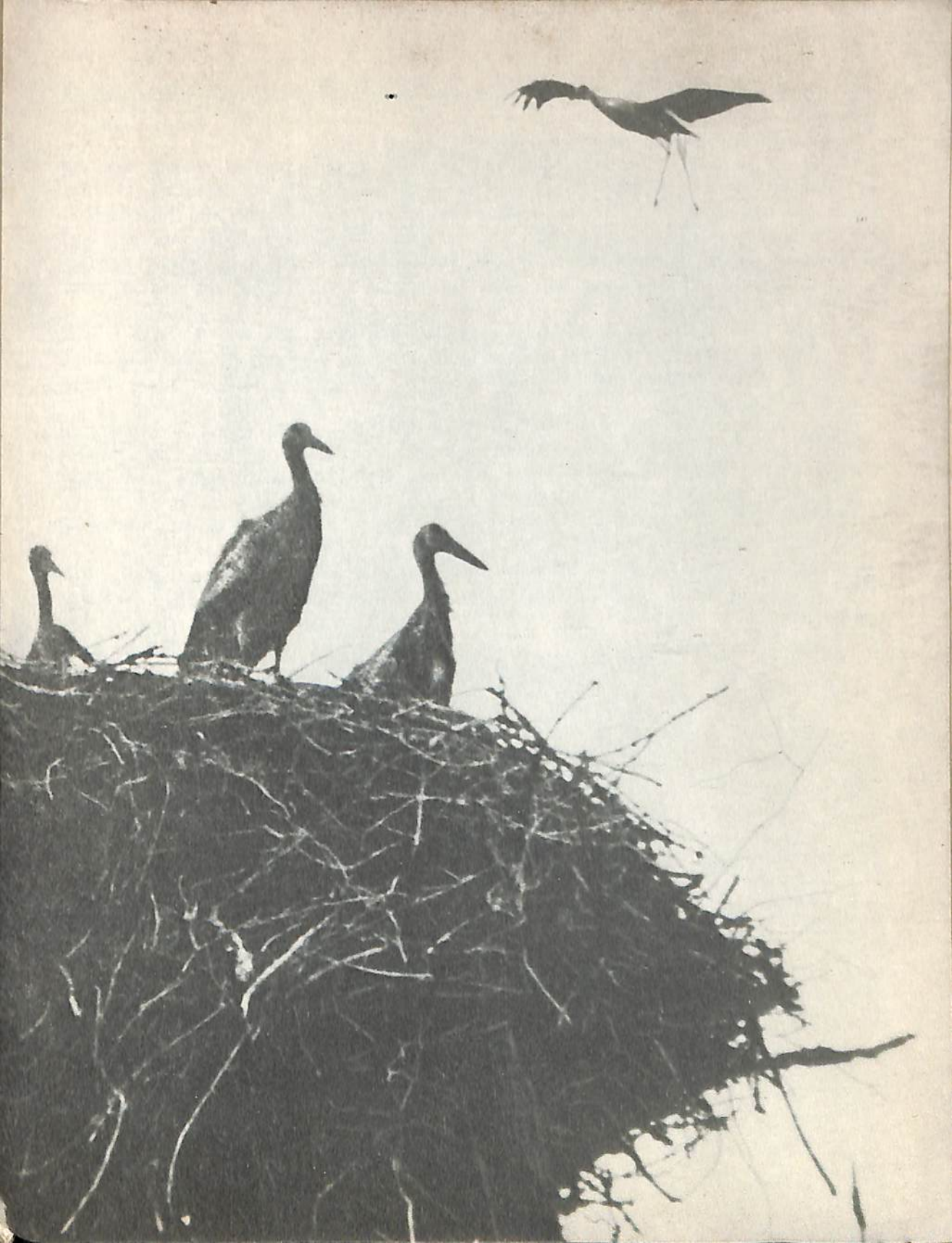
It would seem that storks, who live next door to us and are always on view, cannot have any secrets from man.

Why then are their numbers decreasing?

There is no single answer to this question. The most important reasons are the draining of swamps and lakes where storks used to feed, the use of chemicals in fields, the expansion of industry. It is thought that cities, railway lines and high-tension electric lines frighten the storks away. There is no doubt that all these factors have had an adverse effect on the number of nests. On the other hand, there is any number of examples of storks building their nests and raising families right next to all these sources of noise.

I once saw a stork's nest near Kiev from the window of a train. The tree it was built in stood no farther that ten steps away from a very busy railway line. Elsewhere in the Ukraine I photographed a stork's nest with young near a high-voltage transmission line.

So there must be other reasons than noise that drive storks away. For example, storks have left the Askania-Nova preserve, which, it would seem, should be a haven for them. However, for several years now their nests in Askania-Nova have been empty, while storks are still found in the surrounding countryside.

It is up to biologists to get at the root of the matter. Possibly we do not yet know enough about storks' biology.

Today people are eager to preserve wild nature close to their own homes. And what could be better than having strong handsome birds living right overhead, on the roof of your house.

The Chigetai

We were driving slowly across a desert reserve near Kushka in hot Turkmenia. The fierce rays of the sun pierced your body with thousands of invisible needles as soon as you stuck your head out from under the awning. Suddenly, far away, we glimpsed a file of sand-yellow animals. They watched us intently as we drew nearer. Through my binoculars I could see the animals in detail. They stood poised for flight, tense as a bow's string. At last we must have crossed some invisible line, and the herd dashed away at a gallop and disappeared beyond the horizon. The driver stopped the jeep. Let them run, no point in pursuing them.

It gives me a bitter taste in the mouth to write about the hunts which until not so long ago were organised on these noble animals. The chigetai's tasty meat was highly valued and so was the top quality shagreen leather made from its hide. So groups of mounted riders would pursue herds of chigetais in the desert until the animals dropped from exhaustion. A lone rider even on a very fast horse cannot hope to catch up with swift chigetais. They can get up a speed of 70 kilometres an hour, and keep it up for quite some time. But the chigetai was no match for a car and a rifle bullet. They were shot down at watering places, or pursued in cars over vast stretches of

It does look pretty and gentle, but in actual fact a roe-buck can very well stand up for itself

flat desert until their hearts burst. And the herds dwindled fast, as though melting in the deserts. The result is another sad entry in the International Red Data Book.

At present there are only a few thousand chigetais and their relatives, the kiangs, on our planet. They are found in Afghanistan, India, Iran, Mongolia, China and Nepal. About a thousand of these rare animals live in the USSR, in the south of Turkmenia. The Badkhyz wild nature preserve was set up in 1941 specially to save the chigetais. There were then only about 300 of them left. Thanks to the efforts of Soviet zoologists, their numbers in the preserve have since more than trebled. Moreover, about 60 chigetais are now living on the Barsa-Kelmes Island in the Sea of Aral. The animals are closely studied.

For a long time the chigetai was considered a wild ass, or semi-ass. Now zoologists have come to the conclusion that it is more akin to the horse. To be sure, this "horse" is not very big: at most, only 220 centimetres long, and not more than 137 centimetres tall, and it weighs up to 127 kilos. The chigetai has long legs, a heavy head, and ears longer than a horse's but much shorter than a donkey's. The tail is short with a black tassel at the end, like a zebra's or a donkey's. The mane is short, erect and dark-brown or black in colour.

Chigetais prefer the desert, but may also go up into the mountains (especially the kiangs) to an elevation of 3,000 metres. They are not choosy about food and are well-adapted to life in the southern latitudes. They eat over a hundred different species of grasses, mainly wormwood, weeds and cereals. In snowy winters chigetais dig in the snow with their hooves to get at the grass.

In a desert water is a vital source of life. In spring, when there is a lot of moisture in the plants, the chigetais can do without drinking for quite a while. But when the moisture in the grasses dries up, chigetais trample down broad paths to watering places, usually visiting them just before sunset.

Chigetais are fairly intelligent and sensitive animals. They become aware of an approaching sand- or snow-storm some 10-12 hours ahead and seek cover. They have excellent eyesight, hearing, and a fine sense of smell. They cope well in difficult situations and avoid many of the dangers that threaten them.

The female bears a foal at the age of 3 or 4, and then breeds every year till she is 15. The mating season is between May and June. The foals are born 11 and a half months later. Ten days after birth, the foals are already able to run at a speed of up to 40 kilometres an hour for quite some time.

The chigetai's amazing tenacity and peoples' concern have averted the tragedy of extinction. Let us hope that these wonderful animals will thrive for centuries to come.

The Gentle Roe

The roe-deer is always a treasured "trophy" for a photographer on the trail. It is a wonderfully graceful and charming animal. Take, for instance, its huge shiny eyes, so keen and alert, and its delicate, seemingly chiselled head,

moist black nose and big sensitive ears. A photographer counts himself particularly lucky if he gets a shot of an adult buck with three-pronged antlers.

I have had occasion to photograph roe-deer in the Baltic region, the Caucasus, the Sayan Mountains, in Byelorussia's Belovezhskaya Puscha forests, my native Moscow Region and many other localities besides. And I have learnt a lot about these animals.

My first encounter with a roe-deer was most intriguing. It happened in autumn at a young naturalists' station in Alma-Ata. They had a roe-buck which the children called Borka. He had long sharp horns without prongs — an indication of his youth — and looked as meek as could be. As soon as he spotted you by the wall of his pen, he came to meet you and took bread trustfully from your palm with his soft lips. At my request the children on duty let me into the pen to make a closer acquaintance of him. When I began to snap pictures, Borka started a kind of dance, approaching me with mincing steps.

"Watch out!" someone warned me behind. "He's going to attack. Grab him by the horns!" The warning was very timely. Finishing his dance, Borka gave a mighty push with his slender hind legs and came at me like a shot, horns lowered. But I was on the alert now and dashed out of the pen before he left me with a painful memento of our meeting. It transpired that roe-bucks are very aggressive. So if you meet this handsome creature somewhere in a park, do not trust its gentle appearance too much. Roe-deer get used to people in localities where they are given food but in a wild forest these animals are shy and very watchful.

A running herd of roe-deer is an unforgettable sight. With their long slender legs and short compact bodies they seem to have been born for running. A running roe-deer can leap the length of eight metres. It seems to soar through the air. After several long leaps a frightened roe-deer will take a leap high into the air to look around. Then you will see the white spot on its haunches, which shows the way to the other members of the herd. An adult roe-deer can run much faster than a wolf or a lynx. It reaches a speed of 60 kilometres an hour, which often saves it from a predator's teeth.

There are about a million of these graceful small deer in our forests. There are also several sub-species — the European roe-buck, the Caucasian, the Siberian, the Far Eastern. The Siberian roe-buck is the largest: adult males sometimes weigh as much as 65 kilos, while the biggest bucks of the European sub-species never exceed 25 kilos.

Roe-deer eat the shoots and leaves of bushes and trees, and grass with thick stems. Altogether more than 250 species of plants constitute the animal's diet. Among them are mushrooms, mare's-tails and lichens. But roe-deer's favourite food are aspen and poplar twigs. They also eat rowans, meadowsweet, whortleberries, willow-weeds, sorrel and other plants.

A mineral deficiency in their diet makes them look for natural salt-rock outcroppings. They willingly lick the salt specially left for them. People must provide at least two or three salt-lickers to every 1,000 hectares of forest. Potassium salts are usually placed in hollowed logs and tree-stumps.

The mating season runs from July to January. The bucks stage furious tournaments.

Usually their horns have three prongs and very rarely five. Some females (two or three in a thousand) grow warped little horns.

Bucks are protected from their rivals' horns by the very thick skin on their necks and breasts, and the withers.

In November the males begin to shed their horns.

The roes are the most prolific of all deer. A female usually has two fawns a year, but sometimes as many as four.

However, the roe-deer also have many enemies. Their herds are attacked not only by wolves and lynxes but also by foxes, racoons, stray dogs and big birds of prey. Of course, the most vulnerable members of the herd are the fawns which are a few days old.

Marked by the Sun

At the break of dawn Kamal Zholayev stepped out of his caravan, breathed in the bracing mountain air, cupped his hands round his mouth like a trumpet, and over the hills and valleys, awakening the drowsy beechwood reverberated his long call "O-o-o-o! Co-o-o-me!" He walked unhurriedly from the hill where his caravan stood down to a broad glade, which stretched out like a green carpet among wooded mountainsides. He walked lightly and softly. You could tell a mountain-dweller by his gait alone. And he was, indeed, a Balkar, a member of a small North-Caucasian people.

He could see the icy cap of Mount Elbrus. On clear dawns the peak seemed quite close. Below, a dozen kilometres away, slept a spa town. And here, at an altitude of fifteen hundred metres, a man was calling to the deer.

And the deer came in single file, not afraid of the human voice. To be sure they walked cautiously, but they were also trustful — that man was their friend. There he was pouring a tasty mixture into the troughs. Then he would move aside and stand watching them and humming a guttural song.

The deer felt at home on the feeding site. They had got used to this place. As for Kamal, he still wondered sometimes how it was that such a short time ago these beautiful animals had never been heard of in these parts. And now they were his responsibility and his new love!

The sika deer is the most handsome of all the deer family. One simply cannot think of this graceful woodland creature being a "wild beast". It is particularly striking in summer when its reddish coat is covered with what looks like sun spots. The male's young antlers, not yet hardened to bone, sit lightly like a crown on his graceful head.

And beauty isn't the sika deer's only asset. The young antlers — *panti* — are used to make highly effective medicines. They contain more medicinal substances than any of the other deer's young antlers. Deer's meat and hide have also been popular since

time immemorial, and so the sika deer were killed by the thousand. Only when very few were left, did people realise that no stable income could be expected from hunting these deer. So it was decided to breed them on farms. Thus the first antler farms emerged. And they saved the sika deer from total annihilation.

Originally, the sika deer come from the Far East, the coast of the Pacific Ocean, where they live in broad-leaved forests. They prefer low wooded mountains, abounding

The flower-deer is quite hardy and survives the harshest of winters

in brooks, rivers, and large glades rich in brushwood and juicy grasses. The animals eat over 200 species of plants but their favourite foods are the bark, leaves, buds and tender shoots of the lime, oak, maple, ash-tree, pear and goat willow. Of all grasses they prefer vegetable plants. Deer-breeders have established that an adult animal eats an average of 16 kilos of green fodder a day. On sika deer farms there must be no less than 1.5-2 hectares of rich pastureland per head, if not, there won't be time for the grass to grow again and the pastures will soon become unsuitable for grazing.

Though the sika deer look fragile and timid, they are, in fact, quite hardy. They can run for a long time over uneven terrain, and think nothing of leaping over fallen trees in the taiga, making their way through dense growths, and down pebbly slopes and steep rocks. They swim well and can swim over 10 kilometres at a time. When attacked, they are capable of repulsing a predator. Their main weapon is not their antlers but the hooves on their forelegs, which are as sharp as lances.

A sika doe with a fawn

As for the antlers, they serve the males during the mating tournaments, which last from September till November. During these months the forests resound with the bucks' challenging trumpet calls. At these trials of strength the rivals fight fiercely for the right to procreation.

The does usually bear one spotted fawn (twins are very rare) in May. A remarkable feature of sika deer is their capacity to adapt to new living conditions that are often much harsher than those in their native Primorye. This makes it possible to ressettle and acclimatise them in different regions. The first deer to be resettled were taken from antler farms. Soon the distinctive sun-spots of these Far-Eastern natives were to be seen

in the woods of the Caucasus and Carpathian Mountains, in Moldavia, the Moscow, Voronezh and other regions of the temperate zone.

According to approximate estimates, there are now over 40,000 sika deer in the Soviet Union. Most are kept at farms. There are few to be found in the wild. This is why they have been included in the Red Data Book. But the species of the sika deer is now very far from extinction.

And so Kamal Zholayev feeds the deer and protects them from predators and disease in order that their sunny spots may glow in the woods of the Caucasus and the wonder-working antlers may grow on the young bucks' heads. In summer Kamal and his helpers will remove the antlers, and more medicine will be made for sick people. On the label of the phial containing *pantocrin* is a picture of a slender-legged deer. The Chinese call it the flower-deer.

"Yes, it does look like a flower," says Kamal. "And not a barren flower either but a beautiful and useful animal. It is worth all the labour we do for it."

This group of spotted deer was the first to be brought from the Pacific coast and acclimatised in the Caucasus.

But deer which are kept in spacious pens fenced off with netting are not domestic animals. Much hard work is involved in their upkeep, and many secrets have to be learnt if the people are to get their young antlers, famous for their healing properties.

Pantocrin helps many complaints — strain, neurasthenia, neuroses; it also aids recuperation after serious infectious diseases. As there is always a demand for it both on the internal and international market, sika deer breeding is now expanded. The Kabardino-Balkar Autonomous Republic was selected as one of the new localities for acclimatisation. The first sika deer farm in the Northern Caucasus was set up at the Maisky animal farm.

It is already yielding considerable quantities of the life-giving elixir. This is what Kamal Zholayev's work is all about and he does it with great love and devotion.

The Troika Bells

As boys growing up in the country, we often had to take the horses out to graze at night and on the way we would, of course, try to outrace each other. After a hard day's work our horses, naturally enough, were not too fast. But to us they seemed to be cantering like the wind.

Years later, after I had had some experience of real racing, I realised how hard it was to be a good rider. I understood the wisdom behind the jockeys' saying: "To carry the horse to the post on your own shoulders." Yes, a stiff race requires as much effort from the jockey as from his horse. Both have to be superbly trained.

Horses... Their bonds with man are indeed fast. They have toiled together on the

land, the horse doing the heaviest work, they have fought together in battles, the rider's life often depending on his steed. Today we also need horses — for doing various jobs about the farms and for sport.

Equestrian sports are becoming increasingly popular although they are among the most difficult. It is not at all easy to train a horse to do the various complex movements in dressage or jump fences in steeple-chases. Both rider and horse need years of training. Races, cross-country events, flat racing, equestrian competitions... Equestrian sports may not be easy but they are totally captivating. The trainer has to work long and hard on a horse before it is fit to race on the flat or soar over the fences like a bird. Moreover, training begins long before the horse is allowed out on the racing course. It begins on the stud-farms where the thoroughbreds are reared.

And horses have a powerful formative influence on us, too. At equestrian clubs young people learn to be courageous, nimble, industrious and to love animals.

There are over 7,000,000 horses in the Soviet Union today. Half of them are engaged in sports, and the other half work on the land.

Once I heard a small boy cry out in the street of a big city: "Mummy, look, a horse!"

"Why, dear," his mother responded, "haven't you seen horses in films and books?"

"Yes," the boy answered, "but this is a *real* horse!"

A real horse. Even much older people marvel at the sight of it. It is such a perfect, harmonious creature and has so much grace, beauty and strength.

Even in this age of tremendous speeds nothing can compare to the thrill of a ride in a saddle or a trap.

There is a Horse-Breeding Museum at the Timiryazev Agricultural Academy in Moscow. It was set up for learning purposes but also contains works of art associated with horses.

Marvellous cast-iron horses stand by the museum's entrance. On view in the small halls are about 3,000 paintings, drawings and sculptures of horses by Russian and foreign artists.

Among them is a very valuable canvas by the Russian artist N. G. Sverchkov entitled "A. G. Orlov-Chesmensky in a Sled Drawn by Bars-1" which depicts Count Orlov, who initiated the famous Orlov breed of race horses, and Bars-1, one of the first stud stallions of the breed.

"Greys, Bays, Chestnuts, Blacks." Such is the title of a short story by the Russian writer Alexander Kuprin. The title of the story is meaningful: these four are the basic colours of horses. All the others — duns, roans, dapple-greys, piebalds — were derived from them...

Horses... Man has erected numerous monuments to them and expressed his gratitude to them in canvases, sculptures, books and films. Lev Tolstoy's "Yardstick," Soviet writer Pyotr Shiryaev's "Taglioni's Grandson", Chinghiz Aitmatov's "Farewell, Gyulsary!"— these stories portraying horses are also a tribute to the noble animal. Who has not been moved by them?

But there are also other kinds of monuments to man's friendship with the horse.

One such monument stands on my desk. It is a little bell. Nothing much to look at, its bronze has been tarnished by time. It has a thick faceted ear with a round hole for the thong. For a tongue it has a twisted faucet from an old samovar. Along its edge runs an inscription in Old Slavonic. Some of the letters have nearly been erased, and one has to peer hard to read them.

Not every visitor notices the bell. And if he does, he usually picks it up with an ironic smile. But after he has read the inscription and its meaning has sunk in, his face usually lights up and he exclaims, "So it's one of those, is it?"

"Doesn't the inscription say so?"

"So that's what it looks like, 'Valdai's gift'. And does it really 'ring mournfully beneath the shaft'*?"

"How it rings beneath the shaft can't be described — you have to hear it," I usually reply. "At home it sounds quite merry, though."

The guest picks up the bell by its ear and shakes it. A delicate tinkling fills the room. We listen to it in silence, feeling strangely uneasy.

"I say, it does sound sad," says my guest.

"You're just in a bad mood," I retort. "Shake it harder."

Again the house is filled with resonant music, but now it has merged into a single sound and makes one feel happy and not sad. The guest is then sure to smile.

"Listen to that, it sounds just like a dance tune."

Then he again peers at the inscription: "Cast by master bell-maker in the town of Valdai..."

"He must've been a master to make this marvellous thing. Take good care of it," says the guest replacing the little bell.

"Ah, troika, bird of a troika, who dreamed you up?.. With a wondrous peal the little bell rings out; torn to shreds, the air rumbles and turns into wind, everything on earth flies past..."

These lines at the end of Gogol's *Dead Souls* are familiar to every Russian since childhood. And the terrific speeds of our age pale beside the image of velocity created by the great writer.

Today we only see troikas in films, and so we have a somewhat abstract idea of this team of three horses harnessed in a special way, unique to Russia. No other country in past centuries had such regular coach services between cities and towns as Russia. There were stage coach-houses on all the roads where your tired team could be replaced by a fresh one.

For several years running my son and I were fortunate enough to attend the festival of bidding farewell to the Russian winter in the town of Balashikha near Moscow.

It was a wonderful sight. Children were given rides in troikas along the festively decorated streets. And although the troikas were made up of very ordinary shaggy-

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* A reference to a line in the poem "Troika" by Fyodor Glinka which has become a popular Russian song: "And the bell, the gift of Valdai, rings mournfully beneath the shaft-bow."— *Tr.*

legged horses brought in from all over the district, they still looked like real Russian troikas.

Sparkling snow was sprayed up by their hooves. On tall boxes sat coachmen belted with vivid-coloured scarves. The horses' manes were plaited with ribbons. The shaft-bows shone with all the colours of the rainbow. And under one a bell was ringing. It was very much like ours, only its inscription, we found out, was different: "Ride for all you are worth." It was yet another of Valdai's gifts, with its unmistakable timbre — a melodious, protracted, somewhat sad ringing. Along with the snorting of the horses, the encouraging whooping of the coachmen and delighted screams of the little passengers, the tinklings of the bell sounded like distant and very familiar song. The bell was the soloist, and the other noises of the street provided the accompaniment. And suddenly I understood why this simple instrument was loved so much by people. It had such a wonderfully gentle and mellow timbre.

The elderly coachman on the troika with the bell was an acquaintance of mine. He worked as a stableman at a neighbouring state farm. My son rode in the "special" troika, and I listened to the bell, spellbound. And I then realised that it really did sound best of all when suspended under a shaft-bow.

I was struck by the duration of the sound. Back at home I measured it with a stop-watch. I hit the side of the bell with a little hammer, put the bell to my ear and watched the second hand. Gradually dying away, the sound lasted for exactly thirty-five seconds. I did not know if this was long or not. Only later did I discover that it was in fact quite long.

A friend of mine brought a small bell back from Mexico. He bought it at a bull-fight where such bells are hung on the horses and mules' necks and afterwards sold to the public as souvenirs. The bright copper Mexican bell looked splendid beside my modest little bell. A velvet strap with a gold-pattern was threaded in its ear. I picked it up and shook it. It made harsh, shrill sound. I hit its copper side with a tong, the bell rang out sharply and fell silent five seconds later.

Thus the foreign bell lost the competition straightaway. Since then I have read all I could about little Valdai bells and Russian bell-casting in general and I have found out a lot of interesting facts.

According to a popular tale in the Valdai area the Tsar's servitors in ancient Novgorod developed a dislike for the big bell which summoned the people of Novgorod to *veche*, popular meetings, because they felt it incited them to rebellion. So they tore out the bell's tongue and sent the bell into exile.

When the exiled bell was being transported through Valdai, it fell out of the cart, struck the earth and broke into thousands of tiny bells with clear ringing voices. The people of Valdai collected the bells and began hanging them on troikas' shaft-bows.

And ever since these vibrant children of the old rebel have been ringing all over Russia.

As the Russian saying goes, there is a grain of truth in every tale...

I was once given as a gift a badge with the coat-of-arms of another ancient Russian town, Uglich. It had a picture of a bell on it. One of its ears was unclasped, as though

the artist had failed to connect the lines by mistake. "Why should a bell be the symbol of this town?" I wondered.

A while ago I visited a museum in Uglich and saw the very same bell as was depicted on the coat-of-arms, with one ear torn. I found out that it really had been torn as a punishment for inciting the town to rebellion. And so, after suppressing the rebellion, the tsar had the rebel bell beaten, and its ear torn. He then ordered the convicted Uglich rebels to carry it on their shoulders to the Siberian town of Tobolsk, thousands of kilometres away. It is hard to believe that such barbarity was possible. But there it was before me, the bronze herald of freedom, the exiled rebel.

Many years later the bell was returned to its native town, and now thousands of tourists come to see it in the museum. The guide always mentions the beautiful sound of the bell and even strikes it gently to let visitors hear its strong and mellow bass. When the tocsin was rung at its full might, it must have sounded awesome indeed. One cannot help recalling that the Russian writer Alexander Herzen called his revolutionary journal *Kolokol (Bell)*.

Bells were first cast in Kiev in the early 13th century. Gradually this craft became a real art, its secrets passed from father to son. The castings of large bells were important events.

There are three types of bells — Russian, West-European and Chinese.

In the Russian bell the base diameter is the same as its height, ears included. The latter constitute a seventh part of the overall height.

West-European bells emit a strong, sharp and short sound, while Russian bells have a sonorous, mellow and lingering ring.

Chinese bells are not pretty: the base is just a little broader than the upper part and only half of the overall height in diameter. These tube-shaped bells give a muted short ring.

Russia has been famous for its church-bells since olden times. The cities of Suzdal, Vladimir and Novgorod had their own special chimes. The church-bells of the northern Russian town of Rostov-the-Great were particularly popular.

In Rostov I saw the famous belfry of the Cathedral of the Assumption which has thirteen bells. Six of them are so famous that they have their own names. The main bell, "Sysoi" weighs two thousand poods, then there are "Lebed" (Swan), "Baran" (Ram), "Kozyol" (Goat) and "Golodar" (Hungry). Note that there is nothing holy about the names. The seven smaller bells were not considered worthy of individual names.

The Rostov chimes used to be heard for dozens of miles around. Today they are seldom rung, but their wonderful chimes are still known to many people. Recordings of them have been made and today they can be heard in thousands of homes. The Rostov chimes have to be heard, they cannot be described.

Whenever I put the record on I brought from Rostov, I can't help marvelling at the mastery of the foundrymen who cast the bells and the talent of the bell-ringers. And after listening to the record, I sometimes give my harness bell a shake. Its delicate timbre is as clear and sonorous as that of its famous brothers from the Assumption

belfry. Well, no wonder, they are close kin, after all.

They say that silver used to be added to the bronze to make the sound stronger and more vibrant. I cannot say if this is true. But there does seem to be a silvery note in my little bells. The best bells in Russia used to be called "silver-voiced".

It is amazing how the dimensions of the "gift of Valdai" are proportionate to the Russian type of bell. The diameter of the base is equal to the height, and the ear is one seventh of the overall height. The traditions of Russian bell casting were scrupulously observed.

In an article about Valdai in the old encyclopaedic dictionary of Brokhaus and Efron (1896 edition) I found out that my little bell must be at least 90 years old.

Today Valdai attracts numerous tourists. And they all want souvenirs. Many, of course, dream of buying a little bell. So "Valdai's gifts" are now mass-produced. This simple object not only brings joy to many people but testifies to the glorious traditions of the Russian master-foundrymen and calls to mind the legendary "bird-troikas".

Even in our pragmatic age, the melodious ringing of a bell under a shaft-bow adds a touch of magic to a drive in a festive troika.

And they do ring out melodiously at weddings when the guests arrive in a traditional train of troikas, at the festival of bidding farewell to the Russian winter, during the school holidays in March, at race courses, stadiums and fairs. Handsome horses canter along to the sound of pealing bells, delighting both children and adults alike. This is what horses and riding are all about!

During a recent stay in a quiet holiday home near Moscow, a familiar ringing sound came wafting into my little room. What was that? Was I dreaming? Could it be a troika? I dashed to the window and saw a dream-like troika of dapple-grey horses floating past our gates. The mighty shaft horse was going at a swinging trot, and the two trace-horses had their necks curved like swans'.

In feverish haste I grabbed my cameras, which are always ready at hand, one with a black-and-white film and the other with a colour film, and rushed out of the gate. I saw the troika doing a sweeping turn over the field covered with summer grasses and then racing along the bank of the River Moskva straight towards a group of people, gathered round a cinecamera on a tripod. Oh, so a film was being made! I was in luck! I would have a chance to admire a troika against a vivid summer landscape and take some shots of it.

But where could such superb horses have come from, I wondered. We are not all that near Moscow. Surely they could not be from the race course. And then it dawned on me: of course, the First Stud-Farm was not far off. They had to be from there. During a break between filming sessions I found out that this troika was the only one of its kind. A world champion, so to speak. Anyone could see that it was inexpressibly beautiful and splendidly trained. The mettlesome Orlov trotters Savgat, Pyostry Palas and Dobrokhot had excellent pedigrees. But the troika was also unique because it had revived the fame of the legendary Russian bird-troika at International Horse Shows after a lapse of over seventy years (from 1910 to 1981).

In the city of Essen in Federal Germany it raced along with its bells ringing to the

thunderous applause of the spectators. It was driven by one of the most experienced drivers of the First Stud-Farm — Timofei Prokofievich Polyakov.

He was also driving the horses for the film-makers, who had persuaded him to leave his combine harvester for a couple of days (Polyakov is a first-class combine-operator as well as a horseman).

A combine-operator driving a troika! What a paradoxical combination it would seem!

Yet, let us again remember Gogol's lines: "For which Russian does not love to drive at speed?"

"It is a great joy," Polyakov told me, "to see and hear our troika in summer, in the midst of flowering nature. It is as though the grasses, the wind and the trees are playing an accompaniment to it."

I thought that the spectators in Essen could not have appreciated more than half of this troika's charm. But even that half was enough to win their hearts. Nowhere except Russia, has there been anything to match this wonderful team.

Polyakov's words to the effect that a troika must be heard as well as seen, became clear when I found out that he was an accordion-player.

In the old days the troika was often referred to as the coachman's accordion. And every coachman had his own way of playing it. There was a great variety of bells. Their combination determined the troika's harmony. The voice of the shaft-bow's main bell bespoke the passenger's status.

There could be from one to three bells under the shaft-bow. Bells were also hung on the harness. In effect, every troika had a voice of its own.

So, seeing a troika is by no means enough. It is also very important to hear it. And the best thing of all is to see and hear and feel it, sitting in the carriage and experiencing that inimitable feeling of flight accompanied by the marvellous melodious ringing of bronze bells, the pounding of hooves and the whistling of the wind. A keen ear can even discern in the orchestra the whistling of the grasses and the rustling of the leaves.

I have had occasion to see quite a few troikas at indoor riding schools, hippodromes and race tracks.

But in my dreams and waking hours I often see those dapple-greys in the field near Moscow, gliding smoothly over the flowering grasses and gladdening my heart with the ringing bells.

The Goldfinch

The goldfinch is among the most "useful" birds of our forests. It is a small bird, weighing only some 20 grams. But it does a great service to gardens and fields by destroying harmful insects and eating the seeds of weeds (burdock, wild sorrel, etc.).

A goldfinch is easily recognisable by its vivid colouring. The front of the male's head

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and throat are red, its wings black with yellow stripes, its back brown and its breast whitish with light-brown speckles. Females have the same colouring, only somewhat duller. Goldfinches do not migrate except for short distance in cold winters. They are very mobile and spend the greater part of their time in trees. They live in woods, orchards, parks, near fields and vegetable gardens. They are found in Europe, Asia and North America.

This goldfinch refused to fly away for a long time after it was set free

This bird is an old-time favourite on account of its cheerful disposition, handsome plumage and melodious song consisting of resonant trills. The goldfinch seems to be quite happy in a cage. It sings constantly, is not choosy about food and is easily tamed. But, of course, its proper place is in nature.

It is a delight to watch and listen to goldfinches in a wood or park. In February these birds are already full of the joys of spring. In early April they pair off and begin to look for a good place to nest. However, they actually build their nests much later when the willows and the poplars are covered in fluff. It is with this fluff that they line their nests which they usually build on horizontal boughs quite high up and far from the trunk. Goldfinches are skilful builders. Their nests have strong walls of interwoven twigs, roots and cobwebs, and are faced on the outside with lichen, birchbark or fluff. For the lining inside, besides down, the birds also use horse hair, fur and feathers. At about the end of May, when the nest is ready, the female lays 4 to 6 light-blue eggs specled with mauve spots and dashes. The hatching lasts some 12-14 days. The fledgelings remain in the nest no more than 15 days. In the second half of June they begin to fly about. The parents raise their young on a diet of insects, consisting mostly of plant-lice.

In mid-summer young goldfinches join together in flocks. And in September one can see several hundred birds in a flock.

Goldfinches sing all the year round, except for the moulting period, which occurs at the end of summer and only affects adult birds. In captivity goldfinches thrive on hemp and thistle seeds, burdock, ants' eggs, insects, bits of apple and dry loaf. They also eat grated carrots, oat and lettuce sprouts (in winter) and spidewort leaves.

But, I repeat, it is much more rewarding to feed them and listen to their trilling in a wood or park.

The Buzzard

A hunting expert once complained to me that the buzzard, a useful forest bird, was being destroyed by hunters, who mistook it for a goshawk.

I had my first good look at a buzzard through a powerful telescopic lens in the Yaroslavl Region. Our motor-boat was going down a meandering forest river. The morning mist was already sinking into the water. The trees now bordered the banks, now receded to reveal wide meadows. Fragrant hay-ricks were dotted about these meadows — summer had already entered its second phase. As we rounded a bend, a big bird flew across the river.

"That's a buzzard," my hunting-expert friend said. "Look — it's going to land on that rick over there. It is its observation post. I've seen it several times perched there."

We moored the boat and started watching the bird. It was as still as a stone image on the top of the tapering rick.

"You know what," my friend said, "suppose I hang about here on the bank, make a fire, and generally distract its attention, and you try to approach it from the other side, from the forest edge. Perhaps you'll manage to get close enough for a snapshot."

It sounded like a good idea. While he kept the bird's attention, I managed to steal up close to the rick. Soon I could see the buzzard clearly in my viewfinder.

It was much bigger than a crow. Its back was russet brown, its tail edged with a broad black line, its claws yellow. It had a hooked beak.

I took several shots. It did not seem to notice the clicks of the camera, and went on watching my friend on the bank. Then a protracted moan rang out behind me: Keee-keee! The buzzard on the rick started and suddenly soared into the air, and its compact, ideally streamlined body flicked like a shadow over the meadow towards the wood edge. There the buzzard glided over the tree-tops, still winged in a slow soaring flight.

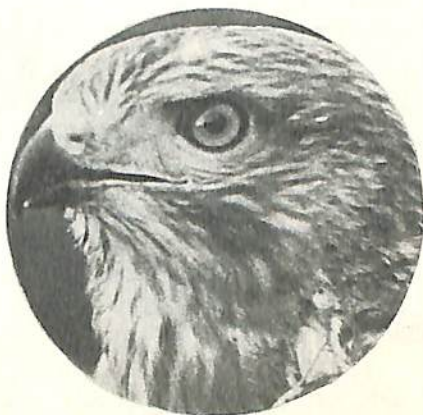
Another bird was gliding through the sky beside it.

"It's a pair," my friend said, coming over. "Note that the female is bigger. That is usual for all birds of prey. Listen to her screams! They must have a nest nearby. But what has she to worry about? The fledgelings must be quite big now, it's July after all. The elder ones must be flying by now."

Since then I have come across buzzards several times and even found their nests. They are usually built not far from the edge of a wood, on a leaf-bearing or coniferous tree. The nest is usually about 8 or even 12 metres off the ground. It is a very solid

The golden eagle

The kestrel

The buzzard

structure, made of comparatively thick branches, and has a kind of canopy of fresh green twigs. The nest may be more than a metre in diameter, and quarters of a metre high. The parents act very boldly near their nest as there are few creatures in the forest they need to fear.

Buzzards fly in from the South in April, and soon set about building nests. The eggs are laid in April or May. There may be from 2 to 4 eggs in a nest.

Both parents take part in the hatching but the female is mostly responsible for it. Since she lays the eggs one or two days apart, and then hatches them all together, the fledgelings in a nest usually differ in age. The hatching lasts 35 days. The young birds leave the nest when they are 42-50 days old.

It is no simple matter for any bird to feed its fledgelings. They are very greedy. During this period the buzzards spend much more time hunting. Their main prey are mouse-like rodents, frogs, lizards and even baby hares. When times are hard, the buzzard will not scorn carrion.

These fierce predators, which sometimes snatch the fledgelings of small song-birds, are themselves the most loving of parents. Not only do they feed their fledgelings, but also protect them from overheating (the purpose of the twigs over the nest is to shelter it from the sun).

Buzzards (there are four sub-species which differ slightly) live in practically all the forests and forest-steppes of the Soviet Union. It is a most useful bird and a very deft mice-catcher.

Of 700 or so species of birds inhabiting the USSR, 43 are birds of prey. For a long time man regarded them as his rivals and ruthlessly destroyed them. In the last two decades this view of winged predators has changed. Many of them are now protected for they do much more good than harm.

The Wonderful Stairway by the Oka

Once you have visited this forest, you want to come back again and again. I was first invited here by a friend, who works in the preserve.

"Do come, it's worth the trip. There is not another place like it in all Russia. I'll give you a horse, and you can ride all over the forest. You will see the most amazing beauty."

So, one evening I got off a bus near the town of Serpukhov, some 100 kilometres to the south of Moscow, and asked a local how to get to Danki. "Just follow this here path through the forest. Once you've crossed the stream by the foot-bridge, turn left, and you can't miss the preserve."

A full moon was hovering over the forest. The dewy grass glittered with silver. The tall pines, oaks and birches whispered secrets with the light breeze. The air was perfumed so heavily with August flowers and berries that I felt as though I was not inhaling it but drinking it like a bracing tonic.

At first I felt quite dizzy — so potent was it after the city air I was used to. Then a feeling of extraordinary vigour came over me, as though I had taken a dip in a life-giving stream. The forest rustled a soothing accompaniment to the late songsters' whistles and melted mysteriously into the blue dusk.

Next morning Orlik, a black stallion, was carrying me at a brisk trot along the straight cuttings in the forest. The forest was already awake. The rising sun pierced the tree-crowns with the sharp spears of its rays, slicing the shreds of fog over the grass. The birds' chorus drowned the thud of hooves, but I could still feel the silence and peace of primeval nature all around me.

My horse slowed down to a walk, and I peered attentively at the forest floating past. It was extremely varied, a veritable kaleidoscope of arboreal landscapes. One moment it was virgin spruce taiga, the next it was a light-filled pine forest with white and green moss carpets. Then came an oakwood, then a birch grove, then a marsh with typical northern vegetation: cranberries, iceland moss, then a large glade covered with steppeland grasses. It was as though somebody had mixed together several natural zones, and you could not tell the north from the south any more. The motley vegetation, the variety of trees, the abundance of grasses suggested that the border between coniferous and broad-leaved forests passed here.

But that was not the only explanation. The preserve lies on the left slope of the Oka's valley. The bank rises northwards in terrace-like ledges. Hence the name of the preserve — Prioksko-Terrasny (by the Terraced Oka).

This original sandy "stairway" by the Oka was created by nature over thousands of years. The lower steps of the "stairway" are made of river deposits, and the upper ones are the result of ancient erosion processes. The result is a very special relief and special soils.

The most amazing feature of this historical forest are its sandy hills and ramparts. One is called Turkish Rampart, another Panikovsky Rampart. They are arched and up to three kilometres in length. Between the ramparts lie stretches of even water meadows abounding in steppe plants unusual for Russia's forest zone. It has been suggested that the seeds of southern steppe grasses were brought here by the waters of the Oka.

The overall result is the famous Oka flora whose diversity is a source of amazement to botanists. In 7 to 10 kilometres one travels through something like the steppe, the wooded steppe, broad-leaved woods and coniferous forest. Altogether 892 species of plants are indigenous here, including 29 rare species and 18 classed as nearing extinction. And all this is mixed together over 50 square kilometres of the preserve.

I dismounted when I saw some bright red geraniums at the edge of a broad meadow, while not far off, under some pine-trees stood columns of houseleek, which had shed its blossom and looked rather like cacti. In the middle of the meadow I found feather-grass and the rarest steppe grass known as Russian speckle, which is to be found in the Moscow Region only on this stretch of land.

The day before in the city I had never given a thought to any of these grasses, or to the sandy "stairway" by the Oka River but now I realised how wonderful it was these

"Nannies" protect a young calf

things existed in the world and that there were people who devoted their lives to the preservation of these treasures.

The horse gave a low whinny and I looked round. Four huge beasts were hovering in the tall grasses along the edge of the wood. Bisons! I knew some lived in the preserve. Still, I was startled by their sudden appearance and leapt back into the saddle, while they slowly passed by in single file without taking the slightest notice of my movement. Well, they were the overlords here. They had nobody to fear. They were not afraid of wolves. And people — people thought the world of them here...

At the sight of a bison most people gasp in amazement: "My, what a whopper!" The animal is impressive not only in size, its body is three metres long and it often weighs over a ton. What impresses you most is the bison's athletic build, its gigantic rippling muscles, powerful humped shoulders, broad chest covered with shaggy hair, bearded head, broad convex forehead and formidable horns. In a word, you are amazed by its antedeluvian aspect as a whole. The bison is a contemporary of the mammoth and the furry rhinoceros. For thousands of years the tribe of the European bison lived at peace with the elements. As recently as the 19th century there were numerous bison herds grazing in European forests. But our atomic age has proved fatal for these forest oxen. Actually, their very survival is a miracle. In the '20s there was not a single bison living in the wild in Europe. They had all been shot. What could they do to protect themselves from armed hunters?

I knew from books that in the '20s there were only 56 European bison living in all the zoos of the world. An international society was set up to save the species. In 1938 only one bison was living in the USSR. Its name was Bodo. The mammoth's contemporaries were on the brink of extinction. But now here was a herd of bison grazing peaceably in a wood near Moscow.

It's hard to believe, isn't it? The fact is that man has put things right. Truly mammoth efforts were necessary to do this. But at least we can now say with certainty that the European bison will survive.

Here are some statistics. In 1981 there were about 2,000 pure-bred European bison in the world. In 19 localities in the USSR there are 600 pure-bred European bison and over a thousand cross-breeds, which are all related to the American bison, known there as the buffalo.

There has been a bison-breeding centre in Prioksko-Terrasny preserve since 1948. Today there are 50 bison here. The aim is to obtain pure-bred young animals and resettle them in former areas of habitation. Most animals are kept in pens, but part of the young herd intended for re-settlement graze freely in the forest, getting used to independent life. To date, the preserve has supplied 160 animals for re-settlement. It may not seem many, but when we remember that in 1938 there was just *one* bison in Russia, the figure of 160 is indeed a scientific feat.

When I was unsaddling Orlik by the house, my friend asked me, "Did you see the bison?"

"Yes."

"Well?"

I gave him the thumbs-up sign.

"Great!"

The state bison-breeding centre in the Prioksko-Terrasny preserve covers an area of 200 hectares of forest. It is cordoned off by a strong fence of logs and netting. Through the middle passes the main road, also fenced off on both sides.

There are several pens at the centre, each containing from 6 to 10 animals. There are feeding troughs standing at intervals along the main road. The bison are given mixed feed twice a day as well as hay and branches: there is not enough natural fodder in the pens.

We came to the centre early in the morning. The workers filled the troughs, and then one of them blew a hunter's horn.

The forest remained quite still. It seemed empty. Then the bison appeared suddenly, all at once, as though they emerged from the earth itself. Six huge animals proceeded to the troughs in an orderly single file.

The leader was a medium-sized female.

"The chief," my friend whispered to me.

During the year the bulls usually graze separately from the cows and only join them in August, during the mating season.

There is a strict matriarchate in bison herds.

The right to be regarded as the chief, as well as the place of each animal in the file, is contended in duels. The strongest and the nimblest cow wins the position of leader. Her commands are unquestioningly obeyed by the other members of the herd. Each knows her place in the file and watches after it jealously. A pretender must fight the rightful owner. If a new cow joins the herd she begins by challenging the last one in the file. If the new cow wins the engagement, she goes up the line until she challenges the leader herself. As a rule the cows do not inflict serious injuries on one another. The duellers clash their foreheads, trying to push the other back. Besides sheer strength, experience and adroitness play a great part in these skirmishes. It is not the biggest cow that always comes out the winner. And even if the herd is headed by a cow which is not much to look at, you can rest assured that she is a prize fighter.

Once a horned gladiator has established her place in the file, she stops all aggressive actions. The younger cows (the last in the file) look after the calves, and are therefore called nannies. The calves enjoy comparative freedom and are allowed to break out of the ranks and gambol about. If they become too playful, the nannies pull them up. In the case of an alarm, the calves hide among the massive bodies of their elders.

The bulls stage tournaments in autumn. Their duels are more savage, and they are liable to maim their rival. Therefore the workers of the preserve try to separate the bulls in autumn. Too much effort has been spent on increasing the numbers of these splendid animals to allow their senseless destruction.

The Zablotskys, a family of zoologists, live at the preserve. The parents and the daughter are all Candidates of Science. The father, Mikhail Alexandrovich, has devoted his life to the study and restoration of the European bison. His wife Lydia Vassilievna and daughter

Maria Mikhailovna have specialised in other branches of biology, but they, too, have a good knowledge of bison and help in the work to increase their numbers. And it is by no means easy. It is important to select for reproduction those specimens which manifest the hereditary features of the European bison. The selection work requires discernment and skill. At one time the bison were crossed with domestic cattle, and many hybrid

The fox is a common animal in the preserve

animals appeared as a result. What we want to perpetuate is the pure-bred bison. And this task is now being successfully tackled by Soviet biologists, among whom considerable credit is due to the Zablotsky family.

Since my first visit I have been back to the "stairway" by the Oka on a number of occasions. The preserve has now expanded its work, classifying it as a biospherical one, and has received a UNESCO certificate. In other words, it plays the role of

The wolf does not come here very. often and his "visits" are discouraged in every possible manner

a natural "thermometer", which registers changes in the environment and helps to forecast them. This enables people to take necessary steps in time and to avert the harmful effects of man's economic activities on the environment. The Prioksko-Terrasny preserve is widely known. It is a sanctuary on our planet in the full sense of the word.

The renowned German biologist Professor Bernhard Grzimek, who has visited this preserve several times, wrote the following in one of his books:

"Over the past decades we have done much useful work jointly with Soviet biologists in the sphere of the protection of living nature and the environment. I am well informed of the successes scored in this field by the Soviet Union, and of the serious and complicated biological studies that are being conducted there. In my monthly TV programmes I am always citing, as a splendid example worthy of imitation, the many policies in the field of nature protection which are being implemented in the Soviet Union."

I remembered Grzimek's words when I saw the beavers' huts on a small lake in the forest nearby. It is hard to believe it now, but at one time the beaver, too, was threatened by extinction. There are numerous elks here, although at one time, they, too, were rare. Sika deer from the Ussuri region have also been brought to the preserve and acclimatised here. So the flower-deer now inhabits the woods around Moscow.

Back in the noisy capital I often remember the silence of the woods, the trilling of birds, the flowering meadows and the file of bison going to their troughs on the wonderful "stairway" by the Oka River.

as an Evening Workers' University. Since 1936 it has functioned as an institute attached to the Union of Soviet Writers, which accepts young people with literary talent from the various republics and gives them a fundamental training in the craft of writing.

[14] Darwin preserve — a sanctuary of wild life in the European part of the USSR, aimed at preserving natural complexes of southern taiga forests.

Berezina preserve — a state wild nature preserve in Byelorussia in the upper reaches of the River Berezina. Was set up for the purpose of protecting and multiplying the beaver population, restoring the European bison, rearing black-cocks in pens and increasing the numbers of water-fowl.

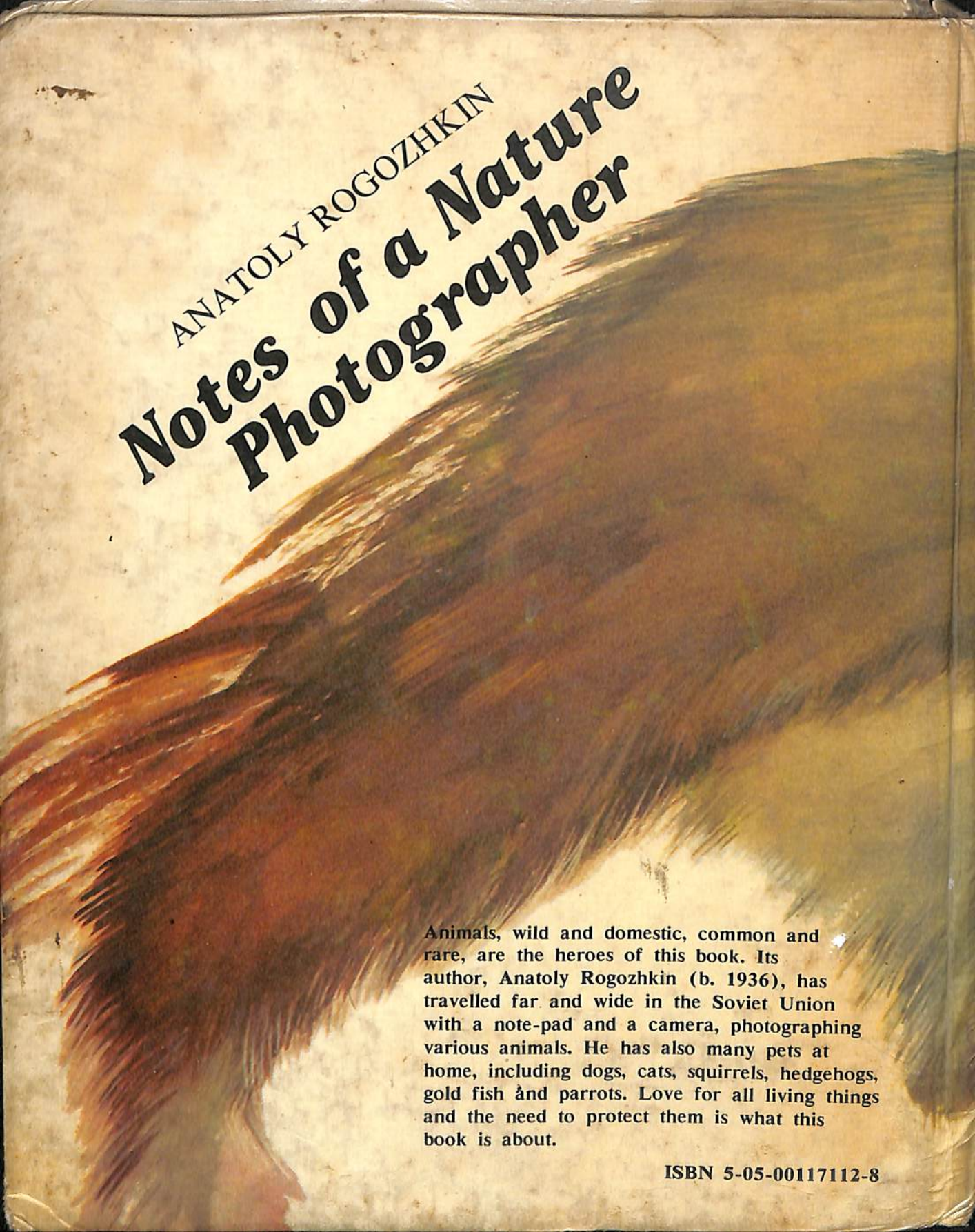
[15] Tsentrnauchfilm — a Soviet film studio which makes popular-science and aid-to-teaching films.

[16] Zguridi, Alexander (b. 1904), a Soviet film-maker in the genre of popular science, People's Artist of the USSR. Vice-President of the International Popular-Science Film Association. His best-known films are *Along the Jungle Path*, *Enchanted Islands*, and *Black Mountain*.

[17] Darwin Museum in Moscow was founded in 1907 for the purpose of spreading Charles Darwin's theory of evolution. The museum collects and preserves exhibits which support and illustrate Darwin's teaching. The museum has unique collections pertaining to hereditary changes observed in wild nature and to artificial selection.

[18] Przhevalsky, Nikolai (1839-1888), a Russian geographer and traveller, the explorer of Central Asia. Was the first to describe the wild camel, the wild horse (which was given his name), the Asiatic black bear.

[19] Lomonosov, Mikhail (1711-1765), a great Russian scholar of encyclopaedic interests, a materialist thinker and one of the founders of modern natural science.

[20] Belovezhskaya Puscha preserve — a wild nature preserve situated at the frontier between the USSR and Poland. The rich and versatile plant life (forests, marshes, peat-bogs) provide good conditions for valuable animals — the European bison, the stag, the wild boar, the roe-deer, the beaver, the ermine, the otter, and the lynx.

NOTES

[1] Brehm, Alfred (1829-1884), a German zoologist famous for his book *The Life of Animals*, which was translated into many languages and greatly enhanced the popular interest in natural history.

[2] Fabre, Jean Henri (1823-1915), a French entomologist and writer.

[3] Timiryazev Kliment (1843-1920), a Russian natural scientist. Studied the photosynthesis of plants and made a large contribution to the science of biology and to the development of the materialist view of the world.

[4] Troyepolsky, Gavriil (b. 1905), a Soviet writer. His long story "A White Gordon with a Black Ear" is very popular with the Soviet readers and was awarded the USSR State Prize.

[5] Grzimek Bernhard (b. 1906), a well-known German zoologist and writer, an active champion of wild nature protection, in particular the preservation of Africa's fauna. His best known books are *Serengeti Shall Not Die, Among African Animals, They Belong To All.*

[6] Adamson, Joy (1910-1980), an English authoress who dedicated her life to the study of African wild animals and their protection. Her best known books are *Born Free*, and *The Spotted Sphinx*.

[7] Durrell, Gerald (b. 1925), a famous English naturalist and writer, the creator of a zoo on the island of Jersey to serve as a genetic fund for protection and multiplication of species of animals in danger of extinction. His books are imbued with the idea of mankind's responsibility for animal life on our planet.

[8] Akimushkin, Igor, a Soviet zoologist and writer, the author of widely read books about animals. Among them are *The Tracks of Amazing Animals, The World of Animals, The Tragedy of Wild Animals, The Sea's Primates, The Crocodile Has Friends Too.*

[9] Ivanov, Mikhail (1871-1935), a Soviet scholar in the field of animal breeding. He developed new breeds of animals in the Askania-Nova preserve, among them the Askania fine-fleeced sheep.

[10] Formozov, Alexander (1899-1973), a Soviet biologist, and animalist painter.

[11] Schwarz, Stanislav (1919-1976), a Soviet zoologist, an academician. Studied the ecology of plants and animals, headed expeditions to explore the nature of Russia's Far North.

[12] Williams, Vassily (1863-1939), a Soviet agronomist and soil expert, an academician. Developed a teaching on the processes of soil-formation and on the restoration of its fertility.

[13] Gorky Literary Institute — an educational establishment initiated by Maxim Gorky in 1933

ANATOLY ROGOZHKIN

Notes of a Nature Photographer

Animals, wild and domestic, common and rare, are the heroes of this book. Its author, Anatoly Rogozhkin (b. 1936), has travelled far and wide in the Soviet Union with a note-pad and a camera, photographing various animals. He has also many pets at home, including dogs, cats, squirrels, hedgehogs, gold fish and parrots. Love for all living things and the need to protect them is what this book is about.

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